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# SOUTHWESTERN MEDICINE

(REGISTERED U. S. PATENT OFFICE)

Vol. XIX,

JANUARY, 1935

No. 1

OFFICIAL ORGAN  
of the  
NEW MEXICO MEDICAL SOCIETY  
ARIZONA STATE MEDICAL ASSOCIATION  
EL PASO COUNTY (TEXAS) MEDICAL SOCIETY  
THE MEDICAL AND SURGICAL ASSOCIATION  
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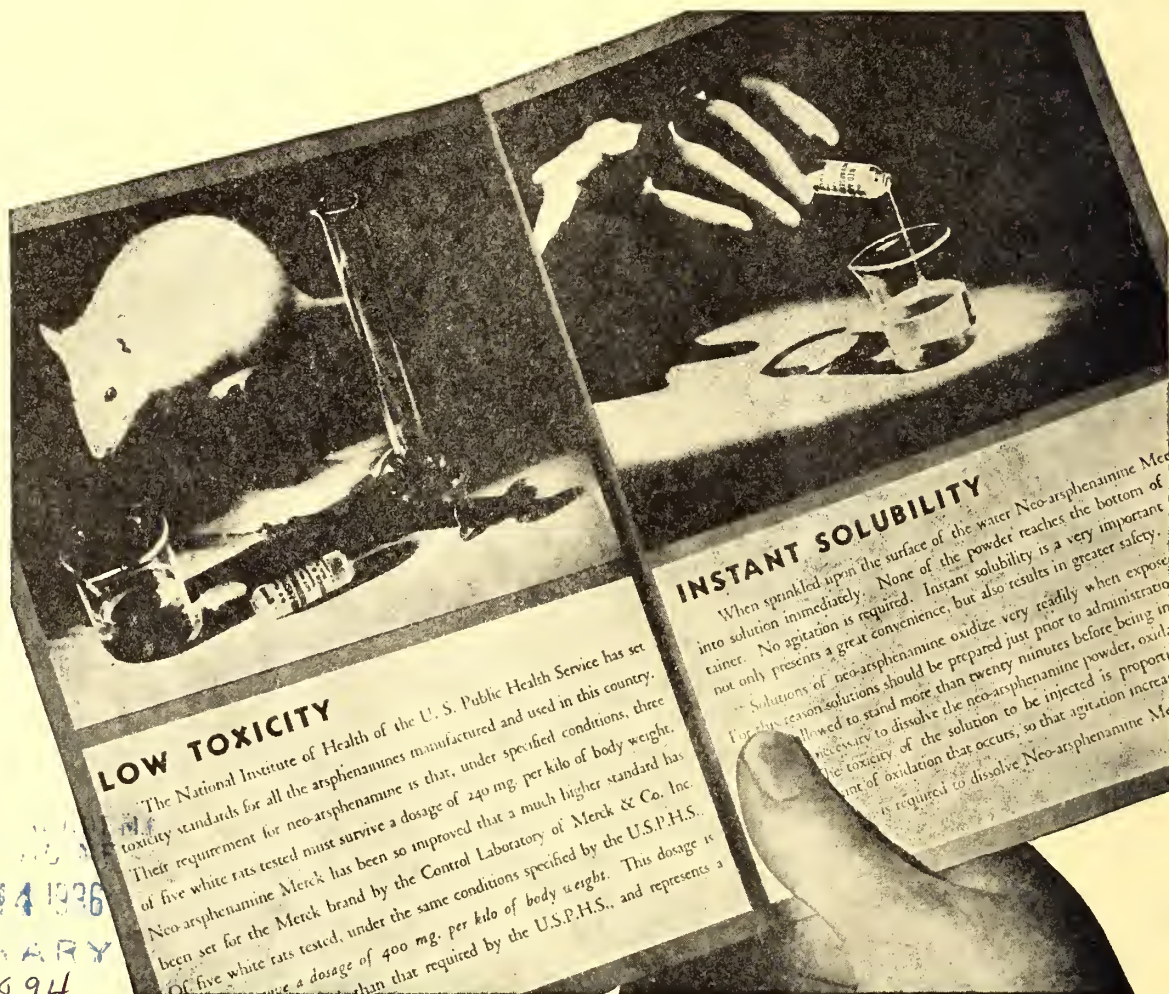
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PUBLISHED MONTHLY

VOL. XIX.

JANUARY, 1935

No. 1

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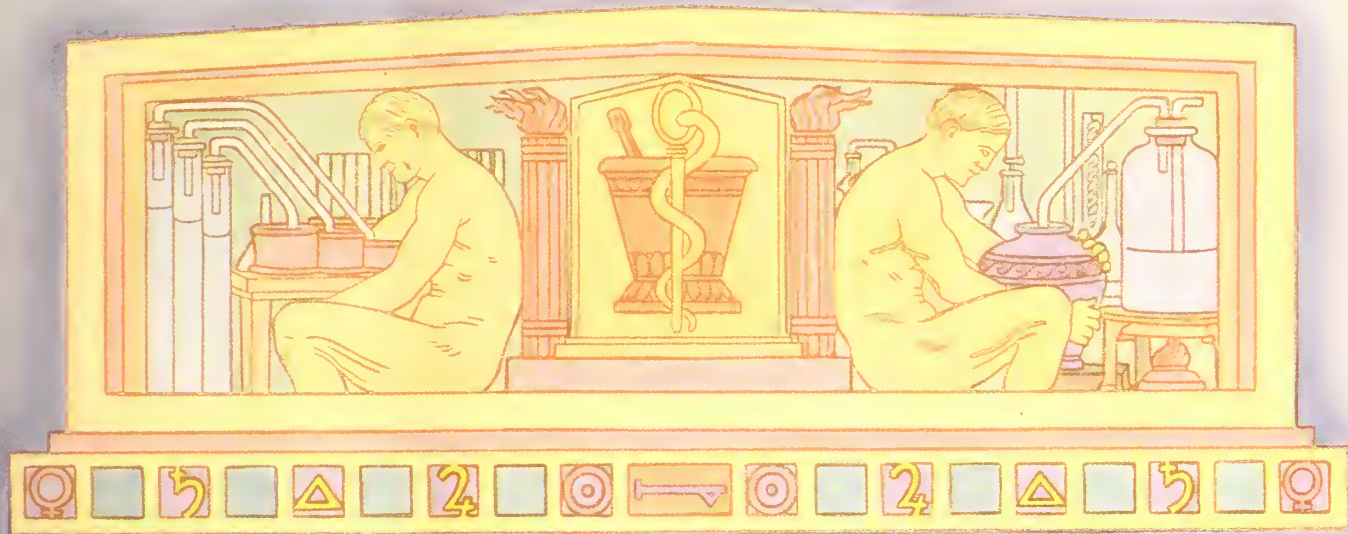
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VOL. XIX,

JANUARY, 1935

No. 1

ANNUAL SUBSCRIPTION \$2

SINGLE COPIES 25 CENTS

Entered at the Postoffice at Phoenix, Arizona, as second class matter.

"Acceptance for mailing at special rate of postage provided for in section 1103, Act of October 3, 1917, authorized March 1, 1921."

## CLASSIFICATION AND TREATMENT OF NEPHRITIS

F. H. HELLER, M. D.  
Pueblo, Colo.

(Read before The New Mexico Medical Society, at its Fifty-second Annual Session, at Las Vegas, N. M., July 19-21, 1934.)

It is essential that a classification of Bright's disease be made, upon which the living patient with a renal lesion may be fitted, and on its background, proper diagnosis and rational treatment be instituted.

One cannot wait for a pathological diagnosis. The clinician is primarily concerned with the practical problem of the nephritic's condition.

Many classifications have been designed. Volhard and Fahr outlined a good one in 1914. Christian, VanSlyke and his associates, Mosenthal, and others, have good classifications. Most of them are somewhat similar. I have chosen the one by Addis, as modified by VanSlyke, because it is entirely a clinical classification based upon the onset, clinical course, physical examination of the patient, and laboratory findings, especially the study of the urine.

### CLASSIFICATION OF BRIGHT'S DISEASE (ADDIS)

#### I. Hemorrhagic:

Acute - latent - healed.

Chronic - active - terminal.

#### II. Degenerative:

a. Cryptic lipoidal nephrosis.

b. Poisons of known composition.

c. Toxemias of pregnancy.

d. Toxemias associated with general infection.

e. Toxemias of foul infection.

f. Toxemias associated with mixed infection.

#### III. Arteriosclerotic:

Benign.

Malignant.

The treatment of nephritis becomes essentially the appropriate treatment for the type of clinical disease which we may have. This is true even when we are dealing with a single manifestation such as edema.

### ACUTE HEMORRHAGIC NEPHRITIS

Clinically there seems to be every evidence of a direct relation between acute hemorrhagic nephritis and infection—most frequently, some type of streptococcus infection. The mechanism of the production of the disease entity, acute hemorrhagic nephritis, we are still very far from understanding. Its prevention, therefore, is extremely unsatisfactory.

One treating it must first recognize that the disease is not limited to the kidneys, and that the kidney has a partial or complete temporary loss of function as a result of congestion, edema, and inflammation.

The urine contains blood, pus and albumin. These findings are necessary for a diagnosis.

Dietary Treatment: Only in the early days of the disease should the diet be restricted in protein intake, salt, and fluids. For a week, fruit juices and carbohydrates, with possible fluid restriction in failure of kidney output or edema; after the first week, the concern is a full maintenance of the nutrition of the patient, free, however, from any excess.

Bed Rest: Holton states that the function of the normal kidney is better in the prone position, as proved by correlated experimental evidence of osmotic pressure in the two positions.

The blood pressure gradually rises and stupor, convulsions, or coma terminates the life. Brain edema takes place. Autopsy findings show an increased weight of these brains

of 20 per cent to 30 per cent, from an intracellular edema. The N. P. N. retention, while increased, is not sufficient to classify a case with this type of convulsion, as having an uremic convulsion. The pathologic process is probably a brain edema alone. Its treatment assumes urgent demand. As the cerebral symptoms appear, or if a convulsion has taken place, two ounces of Epsom salts, 50 per cent solution by mouth or rectum, gives relief. If the blood pressure continues to increase, intramuscular or intravenous administration of 2 to 4 cc. magnesium sulphate gives more prompt aid. Spinal puncture, with the repeated withdrawal of 10 to 25 cc. of fluid, may be used. Calcium chloride or calcium gluconate is of very great service, and perhaps may supplant magnesium sulphate.

In 1934, Hirschfelder, of the Pharmacology Department of the University of Minnesota, reported some unfavorable possibilities from the use of magnesium sulphate and magnesium citrate. He found that a normal person in health has 2 mg. of magnesia per 100 cc. blood plasma. If a healthy person takes an average dose of Epsom salts, or citrate of magnesia, 40 per cent of the injected magnesia is excreted through the kidneys, but the concentration of the magnesia remains normal in the blood plasma. When kidneys are damaged, the administration of one or more purgative doses of Epsom salts may produce a hypermagnesemia. At levels of 11 mg. per 100 cc. of blood plasma drowsiness occurs, and at 17 mg., coma. An editorial in the *Journal of the A. M. A.* comments upon the possibility that many cases of death in the United States each year reported as nephritic coma are probably magnesium coma or convulsions. While I have not had this happen, it should be considered in therapy.

Fortunately, most cases of acute hemorrhagic nephritis recover. In some, the recovery is slow. The index to recovery is clinically the lowering of the blood pressure and the disappearance of the red blood cells from the urine. In some cases this takes a long time. If after prolonged rest the red blood cells and the albumin do not disappear, physical activity should be permitted in increasing amounts, if it does not cause an increase of the red blood cells in the urine.

## TREATMENT OF CHRONIC HEMORRHAGIC NEPHRITIS

Chronic hemorrhagic nephritis is first of all a chronic disease, requiring a long period of management. It is always a progressive disease whether focal or diffuse. One of its signs is invariably the presence of albumin and red blood cells in the urine.

Treatment is dependent upon the cause: First, all foci of infection should be removed. Bowles, of the Children's Memorial Hospital, suggests that the cause in children may be due to faulty hygiene and poor nutrition rather than infection. Second, treatment must depend upon the stage of the disease and the symptoms demanding attention.

Dietary: Older ideas of treatment always stressed the kidneys. The almost universal diet used was low in protein and salt.

The modern viewpoint of Alving, Peters, VanSlyke, Addis, and others, is to treat the patient, treat the symptoms as they present themselves — edema, malnutrition, wasting, and anemia.

The protein intake should always be sufficient to give one gram per kilo of body weight, plus sufficient to compensate for all protein lost in urinary excretion, and plus enough to keep the patient in a highly nutritioned state.

An intestinal barrier exists to protein taken. All protein foods are split into fragments before their use. Blood plasma, from which urine protein comes, must first be resynthesized from protein nitrogen fragments. This point is often lost sight of in the desire of the physician to reduce the presence of albumin in the urine.

Dietary restriction of protein may lower the blood N. P. N., but the kidney function is not thus altered by the procedure. Clinical improvement, or other beneficial result, is observed in only a few cases. Give always an adequate diet that is rich in vitamin.

Edema: The edema of chronic hemorrhagic nephritis upon which treatment must be based, is caused by a lowered osmotic pressure and a variation in the electrolytic content of the tissue fluid. In certain cases, excess salt intake and cardiac decompensation may be contributing factors in the cause of edema. Salt restriction is imperative in any case that has edema. However, in the terminal stages of chronic hemorrhagic nephritis



where salt has been restricted, with vomiting or failure on the part of the kidneys to hold back the chlorides, the basic salts may be markedly depleted.

The two main salts in the body are sodium chloride and sodium bicarbonate. The failure of the kidney to hold back from excretion the sodium chloride, causes a loss of that substance, and if not replenished, the inability of the kidney to manufacture ammonia causes a loss of the sodium bicarbonate. The result is a depletion of the total salt content. With the loss of these salts, an isotonic equivalent of water is also lost. This means dehydration. If salt and water are not supplied at this stage, the patient may lose so much saline that desiccation is a threat to life. The kidneys have lost their elasticity. They cannot hold back water or salt, nor can they secrete water or salt only to a moderate degree. Oliguria in patients bordering on uremia may ensue.

Case Report: Mrs. S., age 60. Chronic hemorrhagic nephritis for over 6 years; enters for drowsiness and dehydration apparent. Blood urea is 160 mg.; urea clearance, 20 per cent. Normal. She had excreted 8 oz. of urine in the past 24 hours. She was given 10 gm.  $\text{N}^2\text{CL}$  5000 cc. water. The drowsiness disappeared and in two weeks blood urea was 60 gm. per 100 cc. blood.

Medication for edema may be ammonium nitrate, or chloride and dextrose solution intravenously. The mercurial salts may be beneficial. Where a cardiac edema is superimposed, digitalis should be used without regard to blood pressure.

Sweating has been used for many years in chronic nephritis by clinicians. It does not eliminate the N.P.N. radicals, but concentrates them. In mild cases of chronic nephritis, patients may state that they feel better after sweating, because of resulting peripheral vascular dilatation. It should not be used.

Lashmeat suggests for the edema of chronic nephritis the use of tenth normal HCl. He comments that the alkaline ash increases edema, but that an acid ash intake decreases it.

Anemia: The use of iron or liver fractions does not seem to be of aid in this type of anemia. Blood transfusions of small amounts, 20 to 100 cc. repeatedly, improve the blood. A high-vitamin diet is also of benefit.

Bowles reports a marked benefit to children

with the use of high-protein and high-vitamin content in the dietary, combined with improved hygiene.

#### CHRONIC DEGENERATIVE NEPHRITIS

The degenerative form of nephritis appears to be a part of a basic pathology of the tissues and capillaries of the whole body. Clinical and experimental evidence indicates clearly that these cases should be set apart from the standpoint of dietary and therapeutic management.

Edema: The normal plasma protein is about 7 gm. per 100 cc. of blood, of which 4.4 grams is serum albumin and 2.58 grams is serum globulin.

In the nephroses there is a constant and progressive distortion of the amount of plasma to a figure less than 7 grams and a variation in the ratio of plasma albumin and globulin. With a decrease of the plasma protein below a figure of 5.5 grams, or a plasma albumin below 2.5 grams, edema ensues.

This is one of the main causes of the edema of nephrosis. Other factors are a change in capillary permeability, chloride retention, and circulatory incompetence. Treatment of edema, therefore, must take into consideration this plasma-protein deficit. A degenerative nephritic may have a daily loss of 5 to 20 grams of plasma protein. This loss should be replaced. The diet must therefore contain 1 gram of protein to each kilo of body weight, plus protein sufficient to compensate for protein loss through the kidney, plus replacement for malnutrition and increased catabolism. Restriction of water is useless in this type of nephritis.

Medicinally, the edema may be treated by mercurial salts intravenously, urea in large doses up to 90 grams daily, and ammonium nitrate and chloride. When circulatory edema is present, digitalis should be used.

The dietary regulations in many cases seem to be of the greatest importance in the regulation of the edema. Where blood cholesterol is increased and the basal metabolism low, thyroid extract should be used. Large doses are often necessary.

Cases of degenerative disease of the kidney rarely show a pure case of nephrosis, although for a long period they clinically manifest the nephrotic syndrome, albuminuria and edema.

Many, with proper therapy, will for a long

time show improvement. Give a proper dietary, control the edema, and maintain a high state of nutrition, as intercurrent infections usually carry them off.

The frequent association of even the most pure form of lipoid nephrosis with definite chronic hemorrhagic nephritis is admitted. A nephrosis, or degenerative disease may terminate in an uremia as the end-stage of a chronic hemorrhagic nephritis. Yet, we are treating a nephrotic syndrome, and as such, it is improved by proper therapy.

#### ARTERIOSCLEROTIC NEPHRITIS

It is well known that some patients tolerate hypertension over long periods without evidence of renal disease. In other cases, rapid renal degeneration is added to the hypertension and uremia results in a very few months. As arteriosclerotic nephritics they present themselves in the terminal stages of the disease, because of the insidious nature of the renal condition.

There is not much to be done for the arteriosclerotic nephritic. Recognize the condition and its importance upon the total circulatory load. Restrict all other cardiac loads.

In conclusion, I quote Henry A. Christian: "Lucky it is that the physician has almost no ability to lower high blood pressure in patients with chronic nephritis."

#### DISCUSSION

DR. R. O. BROWN, Santa Fe, N. M. (opening): I should like to ask an explanation of the mechanics of the action of magnesium sulphate, calcium chloride, calcium gluconate, etc. I have tried them and sometimes get very definite results, but at other times I am not quite so sure. The nutrition of patients seems to suffer, though I have seen some very well-nourished children, particularly in the acute hemorrhagic type and in types of chronic nephrosis.

DR. FRANK H. AUSTIN (Carlsbad, N. M.): I should like to ask about the use of salyrgan. It has been reported that in cases of actual kidney damage, disastrous results have followed its administration intravenously. I wish Dr. Heller would tell us if he has had any experience of this kind.

DR. M. K. WYLDER (Albuquerque, N. M.): Dr. Heller brought out some very interesting points. The baby who has edema is usually the watery washed-out type of baby to begin with. I have checked up on quite a number of babies with edema to find out about their previous diet and have found that the Eagle-brand milk seems to be very popular. It is the easiest way to feed a baby and it is the best way to quiet one that I know of. Among the babies of the Mexican people, that have

developed edema, I have asked, what were you feeding the baby before he became sick, and the answer invariably was "leche de aguila." Investigation has shown that most of the babies who died from edema were given foods running over 50 per cent sugar. This makes a big fat flabby baby who has no resistance to anything and consequently cannot stand any sickness.

DR. HELLER (closing): I regret that the value of this paper was somewhat restricted owing to the failure of the lantern slides. We need to have a clinical classification of nephritis in our minds. When a case comes under observation, its clinical manifestations should give us a clear concept of the physiology, course, and treatment.

Cases of acute nephritis usually get well without much more than is generally done. One very serious complication, edema of the brain manifested by convulsions, stupor, or coma, and an increased blood pressure, if treated by magnesium sulphate, calcium chloride or spinal puncture, changes a very grave case of acute nephritis into a favorable one.

Salyrgan has not shown favorable results in the acute nephritis of children. In chronic hemorrhagic nephritis with edema, or the nephrosis with edema, the mercurial salts are of extreme value. One should not use this medication in full dosage at first. Autopsy reports of cases having the mercurial salts used over a continuous prolonged period show no pathologic changes of kidneys that may be interpreted as evidence of damage from the use of these drugs.

I have stressed the treatment of the edema by proper classification of clinical nephritis and the mechanics of the edema produced.

I stress classification of clinical nephritis, the mechanics of the different types of edema, the newer plan of treatment by mercurial diuretics, ammonium chloride and ammonium nitrate. Finally, the physician should hold in mind that cardiac edema may be a complicating form, and digitalis should then be used. Acute hemorrhagic nephritis is a clinical entity, involving more than the kidney. Of chronic hemorrhagic nephritis and nephrosis, this is also true.

## HEALTH SURVEY IN NEW MEXICO Incidents of the Survey

H. S. A. ALEXANDER, M. D.  
Santa Fe, N. M.

(Read before the Annual Meeting of the New Mexico Public Health Association, July 18, 1934, at Las Vegas.)

In studying the results of the recent health survey, I imagine most of us find considerable food for thought, in the number of children who react to the tuberculin test, and the pos-



sibilities of future active tuberculosis contained therein.

It might be well at this time to consider some of the more recent opinions on the use and value of the tuberculin test.

Throughout the survey the Mantoux test was used—namely, the intradermal injection of one tenth of one cc. of one in one thousand old tuberculin. The test was read at the end of forty-eight hours and, although many pre-school children were given the test, the great majority were school children from entrance to fifteen years of age.

The positive reaction shows a raised edematous area at the site of injection and a varying amount of reddening around that area. A strong or three plus positive is one showing an area of edema measuring fifteen millimeters in diameter and raised more than two millimeters, while surrounding the area of edema is a wide area of reddening.

The conclusions which may be drawn from the presence of a positive reaction and the value of the test are well put by Myers of Minneapolis, who says: "The tuberculin test is one of the most accurate tests discovered by man and it has recently developed into the most important factor in the diagnosis of early tuberculosis."

Pritchard states that a child reacting to tuberculin has one of three conditions: (1) a persistent exposure to the tubercle bacillus; (2) the infection established within the human organism and lying dormant or latent; or (3) the active disease tuberculosis.

With regard to the time element of the Mantoux test: "the interval between the occurrence of the infection and the establishment of a positive skin test may be short, probably only a few weeks or less."

Compare this with the view on x-ray findings. A minimum latent period of from three to six months may elapse between the occurrence of a tuberculous infection and the appearance of x-ray changes.

Pritchard further adds that the oft repeated remark, "Everyone has some tuberculosis," is not proved and such statements misinform the public and act as a detriment to health work.

Of the mode of action of the tuberculin test itself, he adds, "Although doubted by some authorities, there is a fair unanimity of opin-

ion that the reaction is a specific protein reaction to be classed with local allergic and anaphylactic reactions."

In a more recent article, the author writes: "The person reacting to the tuberculin or intracutaneous Mantoux test, has been exposed either directly or indirectly to some person suffering from tuberculosis. Seeking the cause often results in finding an open case of tuberculosis in a person not previously suspected of having the disease."

Further conclusions drawn are: That the individual who reacted is known to have a focus of tuberculosis somewhere in the body. This focus may harbour living and virulent tubercle bacilli over many years or even a lifetime.

The positive test establishes the fact that the tissues are sensitive or allergic to the products of growth of the tubercle bacilli and the individual so reacting is a potential case of the reinfection type of tuberculosis. It is generally agreed that the adult type of tuberculosis rarely, if ever, occurs in individuals who have not had a childhood infection.

Chadwick says, "It would simplify matters if we spoke of the juvenile type of tuberculosis, which is the result of primary infection, and the adult type of tuberculosis, which is the result of reinfection."

As Dr. Buck has explained, the approach to the survey was through the school children, and the children themselves were given the Mantoux test, were measured according to the American Child-Health standard measurements, to establish their nutritional status; and in a number of the counties we were fortunate in having Dr. Mossman examining the eyes and Miss Smith testing vision.

The measurements were done by Mrs. Brown of the survey team, by the public-health nurse of the district in which we were working, and by very efficient volunteer help in every place we visited.

These measurements, I might add, seem to pick out the undernourished child with a great degree of accuracy.

In one particular county, the biceps muscle measurement seemed to be out of proportion to the size of the children. I overheard one child explain this with a sigh—that they were from chasing and killing grasshoppers.

One youngster in the cattle country further

south, looked up with a serious expression just as I was about to give him the Mantoux test, and said, "Is it true they shoot us if this is positive?" Inquiry brought the reply, "Well, that is what they do with cows, isn't it?"

It is interesting to note the wide variation in the percentage of positive reactions, as they are modified by the location and possibility of exposure of the children, ranging from around 6 per cent in the ranch country to 28 per cent and 30 per cent around the health-seeking centers.

That it is possible for tuberculosis to reach a very far-advanced state without recognition, was brought out by finding in three different localities three cases of terminal miliary tuberculosis, in each of which this was a first diagnosis of tuberculosis. All three of these were members of large families and every child in these families showed a strong positive reaction to the Mantoux test. Knowing, as most of us do, the tendency of neighbors in the Spanish-American communities to take all the children and visit the sick, this type of case might lead to a widespread initial infection amongst a large group of children.

It was quite interesting to read, a few days ago, an article by Freilich and Ragins on the subject of admissions to the Cook County hospital, for tuberculosis. They state: "Admission for tuberculosis among Mexicans who are coming from Old Mexico, was fourteen times as great as in the general population, and further, the death rate among Mexicans in Cook County is six times as high as the average death rate in the general population."

I do not know whether I would assume too much if, considering the high rate of "seeding" of the Mexican children, brought out in this state, I should say that what is found in Cook County is an example of what happens to the positive Mantoux children when exposed to the less favourable environment and conditions of occupation found in the city.

The one-time tendency to think of tuberculosis in terms only of hectic flush, extreme emaciation, and so forth, was brought out in two rural communities where two young girls were brought for examination showing this state. Chest examination in each was negative and it was interesting to discover on further investigation that in each the urine showed large quantities of sugar. In one

isolated village an old man was brought in who not only showed a marked glycosuria, but in addition had a gangrene extending almost to the knee.

An interesting group came for examination at Anton Chico. A little woman of sixty-eight arrived, bringing with her, her mother and grandmother. It rather reminded me of the newspaperman's search for the oldest inhabitant in a Devonshire village. Having run down what he imagined was the oldest inhabitant, he proceeded to question him. "So you are the oldest inhabitant?" "No," was the reply, "you ought to see father." "Your father, where is he?" "Oh, he is up on the roof helping grandfather."

Many recent articles have been published dealing with the initial tuberculous infection in children and the apparent complete recovery from that infection. They agree that the greatest danger is in the reinfection and that the most common source of this is within the family. In other words, an open case of tuberculosis within the home and the children are constantly and freely exposed.

In our own endeavors to trace the source of the infection in children who showed strongly positive reactions to the Mantoux test, several instances demonstrated the necessity of prolonged and careful inquiry. In the health-seeking areas this was comparatively simple. One adult from the family would come for examination and explain that husband or wife, as the case might be, had come to this country on account of tuberculosis. However, in other groups, the demonstrating of the possible source was not so simple, and I think that three cases show this well.

The first was a group of three children who all reacted strongly to the Mantoux test. The routine examination of both parents, an elder brother, and an elder sister, was carried out without finding any possible source. Questioning as to other adults who lived in the home, brought out the fact that one grandparent resided there. He was persuaded to come for examination and revealed an extensive anthracosis with a chronic active tuberculosis superimposed.

The second group again showed three children strongly reacting. Four adults in the family were examined, with negative results, and it was only accidentally that another child



member of the family was discovered, who had an unresolved pneumonia and an active tuberculosis at the apex—the probable source at least of the seeding in the other children.

The third group was, I think, the most interesting in view of Pritchard's conclusions that "there must be a persistent exposure to the tubercle bacilli". Six children from the same home were given the Mantoux test. Four were positive and only the two youngest were negative. The father and mother were examined and found free from tuberculosis and it was only the rather intelligent interest of the father which allowed the completion of this group. The father, Spanish-American, explained somewhat in this fashion: "I do not think you understand, Doctor. My wife and myself were both married before. These two children are her children and her first husband died of tuberculosis. These two are my children and my first wife died of tuberculosis. While these, the youngest, are our children and you say that we do not have "el phthisis."

It might be well at this time to give you a typical group of the findings at the end of two four-day periods.

The following figures give an idea of the work done and the material collected: The total number of Mantoux tests given was 612, of which 465 were negative and 147, or 23 per cent, were positive. All of these children were checked over as to their nutritional status and the largest proportion had their eyes examined and tested.

The total number of bloods taken for Wassermanns was 200, of which 186 were negative, thirteen were positive and one anticomplementary; giving us a percentage in this district of  $6\frac{1}{2}$  per cent positive.

Eighty-two regular health examinations were made and, of these, seventy-four were negative, four were suspicious, four definitely had tuberculosis.

Under the heading of special health examinations, when parents or other members of the family came for examination because one or more of the children reacted to the tuberculin test, we find: Total examinations 125: 115 were negative, six were suspicious, four had definite lesions..

In only one district did I feel dissatisfied with the findings as to the origin of the initial

infection in children as manifested by the Mantoux test. This was in a small number of children from the ranch country in the southern part of the state. It was noted that the reactions were generally mild and, almost without exception, we found no evidence of tuberculosis amongst the adult members of the family. On further inquiry, the one fact which seemed to be fairly constant was that the milk supply for these families was from a single cow and that the cow had never been tuberculin-tested.

It is interesting to know that recently considerable work has been done in the University at Albuquerque, investigating the staples of the Spanish-American diet. In those districts where the diet tended to consist largely of the local products grown in the garden and field, the nutritional status of the children was high and adults were uniformly well nourished. In the last rural district we visited, I had expected to find a similar condition and was disappointed to find it otherwise.

As Doctor Buck has explained, blood specimens were taken from all who were willing to have this done, as part of the routine examination. The results of the examination of these specimens, I think, speak for themselves.

On several occasions I have heard the criticism of the blood survey done by Dr. Walter Clarke, that it was a picked cross-section and showed a higher percentage of positives on that account.

In the 1400-odd bloods taken during the health survey, the individuals came either because of a suspicion of possible tuberculosis, or because one or other of the children had a positive reaction to the Mantoux test. In this group the average incidence of positive Wassermanns is higher than in Dr. Clarke's survey.

I cannot say what your reaction may be to the high percentage of positive Wassermanns found during the various surveys, but I personally feel that in the past I may have neglected many opportunities of making use of the State Laboratory and other laboratories throughout the state.

If I may judge from the willingness of those who attended the clinics, the people themselves are anxious to know if they may be

suffering from Dr. Walter Clarke's aptly used "sangre impura."

And, if I may confess it, I personally learned from the results of tests of blood specimens taken from individuals I had examined physically, that syphilis, "the great imitator," has a way of imitating perfect health.

## LOCAL HEALTH ACTIVITIES IN TEXAS

JOHN W. BROWN, M. D.,  
State Health Officer,  
Austin, Texas

(Read before the New Mexico Public Health Association, July 17, 1934, at Las Vegas, N. M.)

Mr. Chairman: Your state health officer has asked me to present to you some of the health lessons which New Mexico can learn from Texas, with particular reference to how you might obtain trained health workers in the rural districts. I shall not attempt to teach you anything, but shall merely sketch briefly some of the things we have attempted in Texas in an effort to arouse interest in and establish locally, a self-sustaining health service. We have had only fair success, hence, I would not recommend that you use Texas as your model.

At this time we have only seven counties in Texas with full-time health departments or health units. These county units are standard with respect to personnel and activities. Two of these are city-county units, which means that they include the county seat in the organization and in each case the county seat holds more than two-thirds of the population of the entire county. I refer to the Amarillo-Potter County unit, and the City-County Unit at El Paso.

In addition to the county units, we have thirteen city health departments which employ, in addition to other personnel, a sanitary engineer or a trained sanitarian. This gives us a total of fifteen counties with local sanitary inspection service, out of a total of 254 counties in the State. Although this percentage is rather low, we must remember that almost half the total population of the State lives in these fifteen counties.

As in most states, we have promoted health work in the cities and towns more zealously

than in the counties, not because conditions were any worse in the towns but because we could reach the greatest number of people by working in the population centers. The regular personnel of the State Department of Health has never been sufficient to permit going into the rural districts in a concentrated way.

### WORK LARGELY EDUCATIONAL

Because we believe that public health protection must be largely exercised by local authorities, we have attempted to assist in providing a trained personnel for those towns and cities desiring to provide health protection. The State Department of Health early recognized the importance of having trained and competent men in charge of public water supplies in the State, and to that end has conducted annual short schools for the past eighteen years. We have probably trained during that time some 200 operators who are still employed at such jobs, and of these during the past two years sixty-seven have merited an operator's license. The licensing of water-plant operators is a voluntary procedure which has grown out of the annual short schools and the activities of the Southwest Water Works Association, in which Texas maintains a live state organization. This Association was organized by the State Department of Health. It has been placed on a self-sustaining basis, is fairly permanent, and publishes annually the proceedings of the short schools.

Along with the training of water-plant operators, some work has been done toward the training of men to operate our sewage treatment plants. This phase of training will be expanded in the future. These training schools have been financed in part by appropriations made to the State Department of Health, but the Association itself has been very active in securing attendance and in committee work which has tended to raise the standard of qualifications for our plant operators.

The Department has also had a hand in sponsoring the Texas Public Health Association which is now in its twelfth year, and is affiliated with the American Public Health Association. Annual meetings are held for the benefit of health workers at which time special sections are devoted to laboratory workers, public health nurses, and milk inspectors.



Through these short schools and other special shorter training periods, we have trained the milk supervisors for our standard milk ordinance towns, 122 in number. The success of the standard milk ordinance in Texas has been largely due to the training of these local men, as we have never had more than three men in the Department who devoted their entire time to milk supervision.

We have attacked this problem from still another angle. Knowing an untrained sanitary inspector was of little value to his health officer or the community, and that towns having less than 8,000 population could not afford to employ one man on dairy inspection, another on mosquito control, and still another to supervise swimming pools, plumbing, water supplies, and sewage disposal, we have asked our educational institutions to set up training courses that would fit a man for a combination of duties. Following this request, Texas A. & M. College has for the past six or seven years offered courses in sanitary engineering, with which may be combined city management dairy husbandry, food sanitation, plumbing, and the like. Some forty men have been graduated from these courses and have been absorbed by our cities and counties, as well as in commercial enterprises.

We find that we have no difficulty in selling city officials on the idea of employing a well-trained sanitary inspector when we point out to them the economy of such service and the work that can be accomplished. We recommend to them men with training, practical experience, and a good personality. When a local man is appointed who is untrained, we offer to take the man and give him instruction both in the field and at the Department offices. This has proved quite helpful.

We shall continue to urge young men in Texas to prepare themselves for sanitary inspection jobs by taking the prescribed courses at our colleges and by attending these supplementary training schools just described.

#### C. W. A. WORK PROGRAM

In addition to the regular health service discussed above, we might call your attention to the work accomplished in Texas under the C. W. A. regime and with the aid of the United States Health Service. Texas shared with other states in the rural sanitation pro-

gram which the Public Health sponsored and supervised in cooperation with the National Recovery Act, and through this assistance was provided with four area directors of sanitation and forty district sanitary supervisors. Under this personnel, county sanitary supervisors were placed in all counties which had sufficient man power to authorize setting up the C. W. A. work program, or about 245 counties. All these men were given some training in their duties, although, in the haste to put men to work, some incompetents were necessarily employed. This combined Public Health Service and C. W. A. personnel worked on rural sanitation projects from December, 1933, until March 29, 1934, when all C. W. A. projects were suspended. The Public Health Service personnel was then reduced to seventeen district supervisors, and four area directors; all county supervisors being dismissed. Since that time about fifteen counties have provided out of their own funds for sanitary supervisors. Work performed has been largely the construction of improved pit-type privies at farm homes and rural schools, although some improvements have been made of drinking-water supplies.

#### MALARIA CONTROL ACTIVITIES

In addition to the above C. W. A. activities, we carried on simultaneously a mosquito eradication campaign, for the same period, using an assistant state director, nine district supervisors, and twenty-nine local supervisors. These men worked in the 145 counties in the State that are recognized as the "malaria belt." During the period 151,854 laborers were used from C. W. A. rolls. They moved 1,083,815 cubic yards of dirt in the construction of 3,300,-171 feet of lateral ditches, and 889,861 feet of sub-lateral ditches. They also cleared some 7,737 acres of land and grubbed 7,767 acres.

At the close of the C. W. A. period, the malaria-control personnel was reduced drastically. We have retained the assistant state director, five district supervisors, and three local supervisors. At present activities are being carried on in only 133 counties, and the work consists of drainage, screening campaigns, house-to-house inspection for breeding places and screen repairs, malaria carrier detection, and a general educational program. Malaria carrier detection is being carried on

in the eighty-four counties in which we found the heaviest infestation of malaria. -

We have assurance from the Public Health Service that this supervising personnel for both sanitation work and malaria control will be furnished until January, 1935. After that other arrangements will have to be made. The activities of the two divisions are fast being dovetailed into the rehabilitation program of the Texas Relief Commission that is just now getting under way. We have induced the Texas Relief Commission to require proper screening of homes and the construction of an improved sanitary pit privy in their improvement plans.

While the labor that has gone into the improvement programs outlined above has been largely "relief labor," many hundreds of individual home owners have now become interested and in recent months "free labor" has been used. We are prone to feel that the idea of sanitary improvements at the farm home has begun to take root in the minds of our people. We are hoping that future State appropriations will make it possible for us to continue to furnish some supervision of this type of work, but whether we have any county or district sanitarians one year from this date is, of course, highly problematical.

#### THE VIRGINIA PLAN

In this connection, we might call attention to the method that has been employed by the Virginia State Department of Health in providing local sanitary inspection service. In that state they have worked on the basis of matching funds. The county appropriates \$1,000 and this is matched by another \$1,000 by the State and the United States Public Health Service. From this budget is provided the salary of \$1,200 a year for a sanitary inspector and the remainder is applied on traveling expense, office supplies, and other necessities.

In addition to the county inspectors, the State is subdivided into districts comprising four or five counties. Over each group is placed an experienced officer of the Public Health Service whose duty it is to supervise the work of the "sanitary demonstrators," to secure the passage and enforcement of local ordinances and regulations, to carry on educational work through public addresses and

popular illustrated lectures, to arrange and carry out cooperative health measures with county boards of supervisors, county boards of health, and other organizations and agencies concerned with the improvement of the public health. The cost of this supervisory service is not charged to the \$2,000 budget mentioned above. In some instances the local budget is supplemented by the Red Cross chapters and civic organizations.

Information on the Virginia set-up was furnished by Dr. I. C. Riggan, State Commissioner of Health of Virginia.

#### PUBLIC HEALTH NURSING SERVICE

In addition to the work of local sanitary inspectors, we have a public-health nursing service which may be of interest to this group. In the employment of regular county nurses, where the county cooperates with the State Department of Health, it has been the policy of the Department, for the last several years, in the appropriation for a county nursing service, to set aside one-half of the budget, which amount of money is matched by the county. This makes the complete budget provide for a twelve-months' service.

The Department reserves the right to pass on the qualifications of the nurse selected and to direct and supervise the nursing program which is inaugurated. Until our present economic situation forced the legislature to reduce appropriations for the Department very drastically, we have employed, on an average, twenty-five nurses under the matching plan. It has been the policy of the Department to withdraw gradually the State's appropriation after the second year of an established nursing service, asking the county to assume a larger part of the budget year after year until it has assumed full financial responsibility, but at this time we are trying to keep a small amount of State funds in the budget of each county nursing service. We have done this because we have found that, when the State withdraws all financial aid, local politics and other conditions in the county cause the service to go backward. One reason for this is that the county sometimes employs a nurse who has not acquired adequate training or experience in public-health nursing.

At this time we have five itinerant nurses, assigned to districts in the State, who act in



an advisory capacity, in addition to conducting itinerant nursing services in the various counties not having full-time nursing service.

#### C. W. A. NURSING PROGRAM

When the Civil Works program made it possible for counties to employ nurses, it was decided that the selection of the nurses and the outlining of their program should be done through the State Department of Health. It was not possible to find a sufficient number of nurses with adequate public-health training and experience to fill these county appointments; hence, we were forced to place graduate nurses who had no public-health training. In so far as was possible, these nurses were contacted and instructed regarding a few special phases of the work which they might do, but they were not allowed to attempt to conduct an all-round public-health nursing program. During the period of three months their time was devoted principally to a program of immunization against diphtheria. By securing the cooperation of the county health officers and the county medical societies, in most of the counties we succeeded in conducting a fairly good piece of work, even with this untrained personnel.

Under the C. W. A. plan, we employed some 207 county nurses for a period of three months, and through their efforts were able to immunize 73,663 children against diphtheria, 23,990 against smallpox, 16,266 against typhoid fever. In addition to the immunization program, these nurses were required to do a great deal of social-service work among those persons on direct relief.

At the conclusion of the work we were of the opinion that at best the results of the program thoroughly demonstrated the importance of employing nurses who are especially trained for public-health work.

In concluding this paper, may we say that a health officer must have the necessary machinery with which to carry on his work if he hopes to perform with credit to himself and his profession. We consider the trained sanitarian and the trained public-health nurse a part of that machinery, without which the health officer is hampered and the results of his own efforts are in large part nullified.

## THE PRESENT STATUS OF X-RAY AND RADIUM THER- APY IN TONSILS

J. S. SUMMERS, M. D.  
Jefferson City, Mo.

(Read before the Kansas City Society of Ophthalmology and Otolaryngology, Nov. 16, 1933.)

I have chosen a subject in which there is some controversy. My purpose is to give the facts and personal experiences and opinions of some of my colleagues and myself on the present status of radium and roentgen-ray treatment of diseased tonsils.

I want to say in the beginning that radiation of tonsils is a treatment and not a surgical operation. The treatment of tonsils by radiation is based upon the fact that they are composed largely of lymphoid tissue, and that lymphoid tissue is one of the most highly radiosensitive tissues in the body, while the fibrous and surrounding tissues are very resistant to radiation. This difference in sensitivity of tissue to the rays makes it possible to radiate the tonsil with a suitable dosage and destroy or atrophy the lymphoid tissue without injury to the fibrous and surrounding tissue. It is especially indicated in diabetics, kidney lesions, Bright's disease, endocarditis (chronic cardiac lesions), rheumatic fever, exophthalmic goiter, asthma, chorea, incipient and advanced tuberculosis, hemophilia, status thymicolymphaticus, fear complex to operation or any condition which lowers the patient's general resistance so as to make an operation inadvisable. In such cases radiation is a valuable therapeutic measure and a satisfactory substitute for tonsillectomy. It can be done with safety, as the only factor which makes a case suitable or unsuitable for radiation lies within the tonsil itself. I find radiation therapy of great value in borderline cases, where the tonsil is not sufficiently diseased to advise an enucleation, and nature needs a little help to atrophy the tonsil normally. One radium treatment will do more good than many of the routine office treatments that are usually given.

#### ROENTGEN TECHNIC

In 1921, Dr. W. B. Witherbee of Rockefeller



Institute of Medical Research, worked out a roentgen-ray technic for treating tonsils. This technic, sometimes with slight modification, is the one generally used. It is as follows:

Seven-inch spark gap, five milliampere current, ten-inch distance, four minutes time, filtered by three millimeters of aluminum and one millimeter of leather. Treatments are given every two weeks until six or eight treatments are given. A piece of sheet lead, with an opening 2 by 2½ inches, is used for protection of the head and face. The patient lies prone on the table with the head turned flat to one side. The rays are directed toward the tonsil, entering through the hole in the lead, which is just below the ear and behind the angle of the jaw.

Dr. Witherbee and his co-workers treated several thousand cases. He was very enthusiastic about the treatment and reported good results in 80 per cent of his cases. He states that there are no contra-indications for radiation of diseased tonsils.

#### RADON TECHNIC

I have selected the technic used by Dr. J. Coleman Scal, as one of the best. He uses either one 33-millicurie, or two 1.5-millicurie removable platinum radon emanation seeds. The seeds are sterilized by boiling. They are 4 millimeters long, and 0.8 millimeters in diameter. The walls are 0.3 millimeters thick and filter out 98.5 per cent of the beta rays. He uses the Joseph Muir radon-seed implanter, burying the seeds two millimeters below the surface of the tonsil and in such a position as to make the radiation as uniform throughout the entire tonsil as possible. He reports better results by using the two seeds. For the purpose of removing the seed, a silk thread two centimeters long is left attached. The seeds are left in five days.

A 3-millicurie platinum radon seed will deliver a dosage of 20 millicurie hours in a little over four days. It loses its strength at the rate of 0.747 of one per cent each succeeding hour, or, one-half of its strength in 3.85 days and practically all in four weeks. This will radiate four cubic centimeters of lymphoid tissue, or the equivalent of a tonsil two centimeters in diameter, without damage to the fibrous and surrounding tissues.

If platinum radon seeds are available, it is

my opinion this would be the method of choice in radiating tonsils.

#### MY TECHNIC, RADIUM NEEDLES

In my office I use ten milligrams of radium sulphate in a platinum needle two centimeters long, with walls 0.2 millimeters thick, threaded with dental floss. After swabbing the tonsils with a strong solution of novocaine, I insert two needles into each tonsil in such a position as to give as equal distribution of the radium rays throughout the entire tonsil as possible.

There is very little pain in inserting the needles, and none after they are embedded. They are left in about three hours, varying the time somewhat as to the size, shape, and consistency of the tonsil. The number of treatments vary from one to four, and they are given three weeks apart.

It is probable that the use of smaller strength needles, in greater numbers will give more uniform and better results.

#### QUOTATIONS

I wrote to a number of leading men who have been treating tonsils by radiation, and I am giving you a gist of their opinions.

W. D. McFee, M. D., of Boston: "I have found roentgen-ray treatment quite satisfactory, particularly in the case of young children."

Harold G. F. Edwards, M. D., F. A. C. P., Shreveport: "I have treated hundreds of cases with roentgen ray and feel that there is a definite place for this type of treatment. It is not a panacea."

John S. Derr, M. D., Frederick, Md.: "I have treated 290 cases with roentgen ray in the past seven years. I can say without reservation that our tonsil work has gone over well. It not only shrinks and sterilizes the tonsils, but clears the pharynx and posterior nares. Out of the 290 cases, not over five cases do we know of have been operated on for their tonsils."

James W. Babcock, M. D., of New York City: "Judging from articles published, the effects to be expected from roentgen therapy in chronic tonsillitis are a reduction in size due to diminution of the lymphoid tissue, and an increase, relative if not actual, of connective tissue, resulting in an opening of the mouths of the crypts and their sterilization by improved drainage. Other lymphoid tissue in the

pharynx and naso-pharynx is also supposed to disappear. A strong point is made of this, as it is difficult or impossible to remove all of this tissue surgically. Roentgen therapy would be the treatment of choice on account of the lack of pain, loss of time from business, and the admitted possibility of some more or less dangerous complication of an operation, if the results obtained were satisfactory. My opinion of the value of this method has not changed, and it does not seem to be popular in this locality at present."

W. Warner Watkins, M. D., Phoenix: "I am still partial to x-ray treatment of tonsil disease of the hyperplastic type. In my opinion, radiotherapy is not usually indicated in the type of tonsil disease in which surgery is indicated."

Harry B. MaGee, Peoria: "The patients seem pleased and send their friends. I personally see a big field in cases where it is indicated."

Ira O. Denman, M. D., Toledo: "After several years' experience with some substitutes for tonsillectomy, I still find myself employing surgery in the majority of cases. Of the substitutes I approve of only one, and use it in selected cases, that is x-ray. The cases to which it is best adapted are of the variety of tonsils in which we find a predominance of lymphoid tissue over the fibrous sub-structure. Such tonsils can, I believe, be thoroughly normalized by x-ray treatments if intelligently and thoroughly carried out."

Francis Carter Wood, M. D., Institute of Cancer Research, Columbia University, New York City: "I enclose copy of a paper written by my associate at St. Luke's hospital, which is, in my opinion, much less optimistic than the facts warrant. I should say that practically all children with hypertrophied tonsils are enormously benefited by radiation. I think the results are just as good as surgical removal, and infinitely cheaper. I get a large number of children after tonsillectomy who still have colds and bronchitis and show granular throats with sago-like nodules. A few treatments dry these up and they stop having sore throats. Children who have had repeated quinsies, or who are going through acute attacks, should not be rayed. Adults do not give as good results as children because the tonsillar tissue is often largely fibrotic, and there-

fore it is impossible to produce atrophy, which is the chief agent in therapy. Nevertheless, I have rayed some old arthritics with astounding results. All in all, I think the failures with radiation are no greater than the failures of surgery. Many of my cases have been followed for eight or ten years. Some children have again had some hypertrophy and have been treated with good results, and in some I have had the tonsils taken out with equally satisfactory results. In other words, with the exception of the peritonsillar abscesses in which the tonsils should always be removed, x-ray is just about as good as surgery."

French K. Hansel, M. D., St. Louis: "I have reviewed literature in Archives of Otolaryngology. Personally I have not had much experience with this method of treatment, but would recommend it in certain selected cases, particularly those of small tonsil stubs. I do not believe that this method of treatment should replace the surgical tonsillectomy."

J. Coleman Scal, M.D., F.A.C.S., New York City: "As to my opinion on radium therapy in diseased tonsils, I wish to say that by this method we have an adequate substitute for tonsillectomy in cases where surgery is contra-indicated. In those cases where surgery is contra-indicated, the implantation of radon seeds is my method of choice. With such treatment I have obtained a complete atrophy of the tonsils without any reaction or injury to neighboring structures. This method is painless, can be performed in the office, there is no postoperative hemorrhage or danger of lung abscess and no middle-ear involvement. After watching results for five years, it is my opinion we now have a satisfactory method for irradiation of diseased tonsils by means of radium in the form of radium emanation. Results were so uniformly good as to leave no doubt that we have a highly efficient method of treating with radium emanation inoperable diseases of the tonsils. I still rely on surgery for the usual uncomplicated case unless it is for the removal of tonsil tabs or lingual tonsils."

Joseph Muir, M. D., F. A. C. S., New York City: "I am in full agreement with all of Dr. Scal's conclusions."

John H. Vaughan, M. D., Amarillo, Texas: "A point our contemporaries make is that ton-



sils are very hard to take out after having been irradiated. This is not true. They are fully as easy to remove as those which have not been treated. I am of the opinion that when we get less desire to cut, there are going to be more tonsils cured with radiotherapy."

Paul B. MacCready, M. D., New Haven: "At the present time I see no excuse for treating tonsils by radium or x-ray."

#### END RESULTS OF RADIUM TREATMENT IN INFECTED LYMPHOID TONSILS.

After proper radiation of the tonsils, there is a marked destruction, atrophy and absorption of the lymphoid tissue, until the tonsil has been reduced to one-third or one-fourth of its former size. The fibrous tissue, a poor medium for bacteria, is matted down to a small firm hard mass. The crypts become shallower, more open, and many of them obliterated. This gives excellent drainage and the pathological bacteria of the crypts largely disappear. It is rarely I find a crypt sealed over with cicatricial tissue, and infection shut in. There is no scar tissue or deformity of the palate and the pharynx. The capsule of the tonsil is saved and protection and support to the pharyngeal constrictor muscles is kept. Recurrent attacks of tonsillitis and frequent sore throats are eliminated in practically all cases. Arthritis and joint symptoms are remarkably relieved with two or three weeks. The patient feels better, that tired feeling and achy pain is gone, he gains in weight, pep, and ambition.

I think the end results in my cases are about the same as those described by Dr. Scal. Many of the highly lymphoid tonsils melt away until it takes close inspection to tell whether they have not been enucleated. A highly fibrous tonsil will be benefited by radiation, but results are not good and the treatment is not advised.

In the few tonsils I have enucleated after radiation, I have found no more adhesions nor experienced any more difficulty in their removal than with a tonsil not radiated.

#### CONCLUSIONS

In my practice I find that, in properly selected cases of diseased lymphoid tonsils, in borderline cases, and in cases where the surgical risk is too great, radiation therapy is eminently satisfactory to both my patient and myself.

There is no anesthetic with its complications. It is safe, efficient, an office procedure, economical, with no loss of time, no bleeding, few recurrences and no serious after effects. There is very little, or no, scarring of tissues, and the pillars are not injured.

In well-selected cases of lymphoid tonsils, I think I have uniformly as good results and as well-satisfied patients by radiation as I have by enucleation. The patients are not inconvenienced, they are relieved, they like it, and they tell their friends. If you do not want to treat tonsils by radiation, never start it, because your patients will not allow you to stop.

## SOME PROBLEMS OF OBSTETRICS.

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(Read before The New Mexico Medical Society at its Fifty-Second Annual Session at Las Vegas, N. M., July 19-21, 1934.)

Let us first review the mechanism and the nature of the dilatation of the cervix uteri and the expulsion of the uterine contents. The uterus is a hollow smooth-muscle organ whose fibers have all the properties of smooth-muscle cells found anywhere, such as response to stimuli from sympathetic nerve fibers, irritability, and long-sustained contractility. Thus it is capable of rhythmic, coordinate contraction, as is seen in any other hollow viscus. It is interesting to note the architecture of the uterus and to see how the various groups of fibers each have their own proper and important function. There are, you remember, circular fibers forming a sphincter-like ring at the external os and another at the internal os. Then there are fibers extending from the fundus down, going into the cervix and also branching at the level of the internal os and sending out shoots laterally (like the stays of an umbrella) in all directions and attaching to the fasciae of the pelvis. These branch fibers are grouped in bundles called the broad ligaments, utero-sacral ligaments, and the ligaments of Mackenrodt, which is the name given to a thickening in the lower part of the broad ligaments. More fibers, arranged in whorls around the uterus, form the intricate



mesh-work which compose the body of the fundus uteri. The mechanism of this whole structure is evidently controlled by various sympathetic nerve plexuses and ganglia which are found distributed near the uterus and in various parts of the pelvis.

Now, it is evident that the reciprocal innervation principle of Sherrington—the best example of which is the biceps and triceps group—is found here. According to this great English authority, whenever one wills the biceps to contract, there is not only the proper impulse for that contraction, but at the same time an impulse for relaxation of the antagonistic triceps. And so in the uterus, when uterine contractions begin, there is not only a contraction of the fibers of the fundus, but at the same time there is a relaxation of the circular fibers which make up the cervix. There is a very interesting coordination here, which to my knowledge has not been sufficiently studied by our physiologists and anatomists, but we know it exists because we can trace it in this mechanism. There is then, with the impulse of contraction of the fibers of the fundus, an impulse of relaxation of the circular fibers of the cervix. Not only that, but those fibers which branch from the uterus toward the pelvis walls, begin to contract—thus lifting the mucous membrane of the fornices of the vagina away from the cervix and pulling the cervix itself in all directions toward the pelvic wall. This process of dilatation of the cervix is finally complete when, and only when, all traces of the cervix have disappeared and the canal of the vagina, the cervix, and the lower uterine segment, have assumed the same caliber as the body of the uterus itself. It appears, then, that the efficacy of the continued distending pressure of the presenting part, or the ingeniously conceived effect of the “hydrostatic wedge” of the bag of waters, may not have much to do with the opening of the uterus. It is instructive to study the gradual dilation of the cervix in shoulder or transverse presentation, when there certainly is no object near the cervix, and dilation proceeds in a normal manner and with only a slight delay, which can easily be attributed to the abnormal shape of the uterus. On the other hand how many cases have we seen where a presenting part was continually pushing against the cervix and still dilation proceeded

very slowly, if at all? Thus, we have the uterus emptying itself by a sort of disgorging mechanism wherein the fundus of the uterus becomes thicker as the contractions proceed. There is a characteristic sign in inevitable abortion which, as far as I know, is not mentioned in any of the recent textbooks: When the internal os is dilated, and the external os is still only slightly patulous, there is a peculiar dome-like retraction of the upper part of the walls of the vagina, due to the tension on these uterine ligaments that can easily be detected by the examiner. This same thing is seen in the “frozen pelvis” of pelvic cellulitis. In both cases it disappears under anesthesia, but in the case of bleeding from pregnancy it is a sign of inevitable abortion. The sides of the uterus become gradually shorter, while the cervix recedes in all directions to the wall of the pelvis. The cervix becomes shorter and is really pulled back over the part of the fetus presenting, and the contents of the uterus are forced out by the propelling action of the constantly thickening upper part of the fundus. It is easily seen that this admirable mechanism is sometimes thrown entirely out of gear by various untoward circumstances.

Bearing in mind the facts just related, let us now think about a few of the obstetrical problems which we meet from time to time. First, inertia uteri. The term is self-explanatory. It simply means that the uterus refuses to function. This condition is divided into two classes, primary and secondary. In primary uterine inertia, the pains are irregular, of uneven duration, frequently colicky or cramp-like, exceedingly painful and wearing on the patient. Various causes may bring about this condition: Over-distention of the uterus by large amounts of water, or a large fetus, thins out the walls to such an extent that the contractions are feeble but very painful. We may have a patient edematous with a toxemia of pregnancy or other causes; the entire uterus shares in this general dropsical condition. The water in the uterine tissue may seriously interfere with the delicately coordinated process described above. Fibroids may cause a local disturbance, or inflammatory reaction or peritoneal adhesions may throw the entire mechanism into disorder. The fetal membranes may be tightly agglutinated to the internal os uteri and to the lower uterine segment, so that dila-

tation is impossible. At times this agglutination is the cause of early rupture of the membranes. A large placenta may, for a time, cause part of the uterine muscle to become inactive. A disproportionate pelvis may pinch a section so that the well-ordered action of the uterus is disturbed; thus, frequently we can detect a flat side to the pelvis by noting that the corresponding part of the cervix retracts more slowly than the rest. In a flat pelvis there is very frequently a thick edematous so-called anterior lip. Placenta praevia marginalis very often throws the smooth action of the lower uterine section into disorder. Not infrequently, the sole cause of primary inertia is a distended bladder. In general, this state of affairs (if not due to over-distention, can be righted by the stimulating action of a very small dose, say three minims, of pituitary extract, or, if the case has gone long and the patient needs rest, by giving one-fourth grain of morphine. The important thing is to study the patient, determine the cause, and try to find a remedy.

Secondary uterine inertia is simply the exhaustion of the uterus. The uterus is relaxed, the contractions are feeble, and the patient has a small pulse and shows in general the symptoms of exhaustion. One need not inquire into the history because the picture itself is characteristic and pathetic. There is one great danger to the patient in this crisis: That she will be delivered before the uterus has regained energy to contract. If the patient is delivered in this state, after the uterus is emptied it will still lie inert and the fibers which surround the blood vessels and sinuses in the uterus (in the form of a basket weave and the sole means of hemostasis) will fail to contract and the patient will suffer an alarming loss of blood. The exsanguinated, exhausted patient is doubly open to the overwhelming invasion by the ever-present pathogenic organisms. It is much safer for the mother, and also for the infant, to gain rest by whatever means is at the attendant's command and to attempt delivery only after the uterus has shown signs of recuperation and renewed activity.

The mechanism of hemostasis in the uterus should be considered in giving various drugs to stop uterine bleeding. If the uterus is sluggish, we must at once find some means of stimulating the muscle fibers to activity. Pit-

uitary extract is a drug of questionable value. True enough, it excites terrific contraction of the uterine muscle, and after brief activity there is a prolonged period of marked relaxation, when a patient may bleed into her own uterus. Unless the attendant is then vigilant, the patient will get into serious trouble without any warning signs. You all know the trick of controlling pituitary-excited reactions with anesthesia. Obviously, then, if the patient is anesthetized, the drug is useless. Personally, I seldom use it. There are several very active and non-irritating preparations of ergot, or its derivatives, which do not have this unfortunate property of pituitary extract, and which can be given hypodermically without any fear of causing abscesses or undesirable irritation. I much prefer these in my own practice.

There is one fact regarding the cervix that deserves especial attention. I said that a cervix is completely dilated when, and only when, its canal is of the same caliber as the vagina and the lower uterine segment. In oblique presentations and in breech presentations, it is of the greatest importance that we make no attempt to deliver until the cervix is completely dilated. I am convinced that, in many cases of breech extraction, the after-coming head gives trouble because the above formula has not been satisfied. The almost completely dilated cervix is greatly irritated by the passage of the body of the child. This irritation stimulates the appreciable remnant of the cervix to the contraction. When this remnant comes to the neck of the fetus, the power of contraction is exercised and it immediately closes down before the head can be delivered. This vise-like grip can be broken only by actual rupture of the cervix, or by the prompt and fearless use of the scissors. If the cervix be properly dilated, there is seldom any resistance to the after-coming head. In my own experience, I can look with regret upon several instances in which I did not satisfy the above formula before proceeding.

All of us at times deal with patients who exhibit various symptoms of toxemias of pregnancy. There has been an immense amount of investigation by able men on this subject and it is to be hoped that some day we shall have adequate means of dealing with this dreadful complication. Probably all pregnant women are more or less toxic, and the whole proposi-



tion is a matter of degree. Certain things, however, we must bear in mind. Those patients with histories of rheumatism or scarlet fever, will certainly bear careful watching through their pregnancies. Frequent urinalyses and blood-pressure observations are in order, as are such other procedures as the common sense of the physician will suggest. For all practical purposes we note three major classes of toxemia.

Occasionally we find patients who have been putting on excess weight, showing swelling of the ankles, disappearance of crowsfeet, and signs of general edema of the face, and sometimes of the whole body. Blood pressure may show systolic of 90 and diastolic 60, with a slow sluggish pulse. These patients are indeed in grave danger. The condition is due to some unknown poison which is circulating through the body of the mother and of the fetus. It is not at all uncommon to see these women die suddenly during labor, or shortly after, occasionally from embolism or from pulmonary edema. Their children, even in easy labors, suffer from intracranial hemorrhages. There is a very evident connection between toxemia in the mother and the presence of toxin in the baby which inhibits the coagulation of the blood; this results in extensive intracranial hemorrhages, icterus neonatorum, and melena. These patients can be greatly helped with some calcium salt given intravenously, or with rest, sunlight, codliver oil and calcium given by mouth.

The two forms of toxemia with high blood pressure have some practical points of interest. Those people who have histories of rheumatism will frequently run a blood pressure of 140 to 150 systolic and 90 diastolic; they show continuously slight traces of albumin, a few casts, and nothing much else. This is unquestionably a sign of distress of kidneys which have been impaired and are now trying to satisfy increased demands. As time goes on, the blood pressure rises, the urine remains thin and the number of casts probably increases; convulsions and coma may set in; in short, the typical picture of uremia. On the other hand, in an eclampsia and a pre-eclampsia (and, by the way, what is the use of calling a condition by one name up to the moment of a convulsion, and by another name from the beginning of the convulsion), there are heavy

quantities of albumin, a scant, concentrated urine, and, strange to say, a relatively small number of, and frequently a total absence of, casts. With this differentiation of the two types of urine (while the prompt emptying of the uterus is the necessary thing in either case), the treatment should be considered from two points of view. In the first type we deal with it as with any other case of Bright's disease with its high blood pressure and the necessity for dietary supervision, since the blood pressure is high from physiologic necessity. In the second type, the blood pressure is up because the patient is poisoned and the toxin possibly acts as an irritant to the vasomotor mechanism. Do not interfere with the blood pressure in the first type, or there will be suppression of the urine. Reduce the blood pressure in the second type, and fill the patient with water until she shows edema all over, whatever other treatment you may find valuable in your experience, and there will probably soon be plenty of urine—and the outcome will be fortunate.

There is one other problem which meets us all on occasion, which I should like to examine for a moment. Subinvolution of the uterus is that condition in which the organ fails to recede to the size of the normal resting organ. This condition may follow full-term pregnancy, miscarriage, or abortion. The causes may be grouped in two classes—those due to infection, and those due to the retention of products of conception, or foreign bodies artificially introduced. When there is a pelvic cellulitis or local peritonitis, the uterus is generally spongy and contains a mucopurulent, foul secretion which is rather characteristic in some cases. In the case of retention, parts of the placenta or membranes, fetal remnants, blood clots and debris, lie within a uterus that is too sluggish to discharge itself fully. The best remedy for this to my knowledge is a combination of ergot, quinine, and strychnine. I use powdered extract of ergot, U.S.P., three grains; two grains of quinine bisulphate, and sometimes 1/40 grain of strychnine in a capsule, beginning with one every six hours, and gradually tapering off to one per day at about the fifth day. This combination has a very beneficial and tonic effect on the uterus and occasionally is all that is needed; however, whenever there is foreign material in the



uterus it obviously should be promptly removed. A dull curette, certainly no sharper than a loop of baling wire, should be used in this procedure. At the same time it is frequently beneficial to use a large (say 26F) rubber catheter with the tip cut off and the cut edge carefully rounded. Wash out the uterus with a salt solution at the temperature of about 100 degrees F., containing about three per cent or more of salt. Using a weak salt solution sometimes takes up the water-soluble toxins in the uterus and, with the absorption of the water, carries them right into the blood stream. The chill that follows is often a thing to remember. However, if you use a strong salt solution, the osmotic pressure is in the other direction and no chill will occur. Occasionally there is left at the placental site a huge group of fibers and tissue, the remnants of the maternal blood vessels, which ordinarily liquify and disappear, but occasionally may persist as a foreign body for some time, causing continued slight bleeding and foul discharge. On bimanual examination, the uterus is found to be lop-sided, spongy, and with a large soft portion indicating where the trouble is located. The rest of the organ is rather firm. This can be carefully removed, but one must remember that it is as easy to go through this soft part of the uterus as it would be to go through so much cheese. These remnants of scar tissue will sometimes persist for months unless they are properly dealt with. It is to be remarked that the use of a dull loop (which I advocate for this work) is not at all the same as the indiscriminate use of the sharp curette, which must be decried in the management of all these types of cases.

#### DISCUSSION

DR. L. O. DUTTON, El Paso, Texas (opening): I was very glad to hear Dr. Heusinkveld take up the problem of toxemias. In conjunction with one of the obstetricians of our city, we have been doing quite an interesting investigation along the line of metabolic dysfunctions during the pregnant state. We have been trying to find out whether certain cases that were anemic failed to respond to ordinary therapeutic measures directed against that condition. We found many of these patients had a syndrome characterized by a mild hypothyroidism, low blood calcium range around 7 to 8, low blood pressure and low blood sugar. Placing those patients on mild or low doses of thyroid extract, calcium, and pushing their carbohydrate intake, they immediately began to take hold and build up. Further observation showed these wo-

men went through their pregnancy much more easily and free from toxemia. The whole delivery course was much better, with better condition of the baby. We found, after working out a good many patients along this line, that their whole tone is distinctly different from that of the patients who did not have the benefit of the study. We believe that a whole lot of toxemia and probably some eclampsia is being prevented by this method. Whether it will prove out in a course of years, I do not know; but certainly these people who have a low metabolism, low sugar, and low calcium, get through their pregnancies in a more satisfactory manner than formerly.

DR. HEUSINKVELD, (closing): What Dr. Dutton said is perfectly true. I hold that these people when they start losing weight are thin in a toxic state and it is damaging to the baby. Those of us who work out in the country, do not have laboratory equipment and cannot deal with values. The characteristic signs of edema, low blood pressure, systolic and diastolic rates, are signals. The administration of calcium and low doses of thyroid extract has done very well. I wanted to call attention to the low blood-pressure group and to differentiate with the two high blood-pressure groups.

## PREVENTION OF HEART DISEASE

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(Read before the New Mexico Medical Society, at its Fifty-Second Annual Session, at Las Vegas, N. M., July 19-21, 1934.)

Problems in medicine, as in all other lines of endeavor, have a way of occupying the center of the stage until they are partially solved; then they drop out of sight, as another problem becomes important.

In the early days in medicine, tuberculosis was considered the great menace of the human race. Medical literature, the daily press, and the magazines all painted gruesome pictures of the decline of our once powerful nation, unless the ravages of tuberculosis were held in check. Much valuable work was done until tuberculosis lost its place as captain of the men of death.

Study was then made of the cancer problem, with the result that many lives have been rendered less miserable through the early diagnosis of cancer. During the last few years, the heart problem has assumed magnificent proportions, with front-page publicity. We are

told that we will all die of heart disease if we live long enough,—which is probably true. Dr. N. S. Davis III, in a paper not yet published, stated before the College of Physicians at the Chicago meeting, that conditions in the circulatory system figured as a part in the cause of almost every death after forty five.

The large life insurance companies, tabulating as they do millions of deaths, are able to get a very good cross-section of the cause of death in this country. Nearly everybody carries life insurance in some form, and these tabulations show the stupendous increase in cardio-renal deaths.

Heart conditions are by no means a new problem. Did not King Solomon in his Proverbs give the injunction. "Keep thy heart with all diligence, for out of it are the issues of life." (Prov. 4:23)

In order to attack the problem of prevention of heart disease, the study of the etiology becomes the paramount question. Most heart conditions will fall into one of the following classes: The congenital, the infective, the syphilitic, and the heart due to the involutional changes of age. Prevention of the congenital type becomes a prenatal problem, and there is no question whatever but that, with intelligent supervision of the expectant mother, a much higher percentage of normal babies can be produced. However, congenital hearts fall out of the later tables, as very few of them live beyond puberty.

To eliminate infective carditis, we should have to get rid of rheumatic fever and its associates or near kinsmen: chorea, tonsilitis, scarlet fever and, in fact, all the infections of the streptococcus group. The importance of rheumatism is well demonstrated, in a report by Seham<sup>1</sup>, in which he found, in a study of 379 children with organic heart disease, that 18 per cent were congenital, 74 per cent rheumatic, and 3.6 all other causes. There were 4.4 per cent undiagnosed.

Our problem, then, becomes one of preventing the development of the rheumatic-fever group, and failing in this, of making the earliest possible diagnosis of these conditions, as early diagnosis with long periods of rest offer the best prognosis.

Glover<sup>2</sup> showed that rheumatic fever has shown a gradual decline since 1901. In England and Wales the rate fell from 67 per million in

1901, to 28 per million in 1928. He stated that there has been a similar fall in the United States, but this is in part explained by the inclusion recently of reports from some of the southern states where rheumatic fever is almost unknown. Christian and Longcope made comparative studies of rheumatic fever in Boston and Baltimore and found that it was not a problem in Baltimore, but that it was a real problem in Boston. This is a valuable point and families with rheumatic tendencies would do much toward perpetuating themselves by moving into the Carolinas, Georgia, or Florida.

Rheumatic fever and chorea account for only about 2 per cent of the deaths from all ages, but in children under fifteen they account for 18 per cent. This should drive the lesson home that the family doctor should be on the lookout with all children under fifteen in his care. The most pleasant preventive measure that has come to my attention was brought out a few years ago by some writer whom I have been unable to locate. He advanced the theory that, since strawberries contain small amounts of salicylic acid, by feeding strawberries freely we could prevent the development of rheumatic processes. If our strawberry growers were only as industrious as the California orange growers, no breakfast would be complete without strawberries, and the problem of infective carditis might be solved.

It is now generally believed that, once a rheumatic process is established, it persists for years—much of the time dormant, but that like tuberculosis it is active and quiescent but never dead; and that for long periods of time these children are absorbing small amounts of infection, most likely from the sinuses or tonsils, which cause a child to be just a little below par, languid, pale, not hungry, not sleeping well, nervous, restless—and finally developing heart symptoms.

Cases showing polyarthritis, rheumatic nodes, chorea, almost always develop cardiac symptoms. Sore throats are common in these cases but are not complained of as in adults. Coombs<sup>3</sup> believes that one-third of these rheumatic children are infected through the tonsil, and that the other two-thirds are the result of minimal infections slipping through the tonsil. In the study of the tonsil, doubtless many ton-



sils have been removed that should not have been, and many have been left that should have been removed. The argument is put forward that the tonsils are a protective organ, protecting us from infection, and should not be removed. An unknown writer quoted by Marshall<sup>1</sup> compares them to frontier forts that have fallen into the hands of the enemy and are no longer a protection but a menace and should be razed.

Infectious carditis varies in its mode of attack and development. It may develop with a distinct fever and run a course of days or weeks; it may run only a slight evening temperature, and it may develop with no fever at all. Increased pulse rate is indicative, but differentiation of neurotic from toxic is next to impossible. Even after carditis has developed, if recognized, there is still a chance, but it means a period of rest for weeks or months. Coombs took a group of children with carditis and fifteen years later not a vestige of cardiac trouble could be found. Even well-developed murmurs, heard both front and back, may entirely disappear. I recall a boy in my practice, about twenty-five years ago, who developed rheumatic fever with carditis. He was bedfast over a year and confined to his home another year, and now at thirty-seven years of age he is in good health and working every day as a telegraph operator. If these cases are diagnosed early and given long periods of complete rest, they may live for years and in comparative comfort. If a vocation which is not too strenuous is chosen, they become useful self-supporting citizens.

Scarlet fever, diphtheria, and streptococcus viridans account for some of these cases. Early and active treatment of diphtheria with sufficient anti-toxin to neutralize all the toxins in the body, will prevent the post-diphtheritic heart. With scarlet fever we have not yet a reliable remedy, as we have in diphtheria, and scarlatina still figures as an important factor in the development of heart conditions. While not affecting the heart directly, it acts indirectly through the kidneys. Hypertension and streptococcus viridans attack hearts that already have heart lesions. In these cases it then becomes particularly important to clear up all foci of infection—such as teeth, tonsils, and sinuses.

In the syphilitic types, the remedy is sim-

ple and effective but usually impossible to apply, as the average patient will not stick to treatment long enough to be amply protected. The diagnosis is easily made, and there is a varying period of from ten to fifteen years between the development of the initial lesion and the appearance of cardiac symptoms.

White<sup>2</sup> reports that he sees only about one-half the number of syphilitic hearts now that he did twenty years ago.

The heart damaged by hyperthyroidism should be eliminated, as the consensus of opinion now is that it is the increased demand of increased metabolism that wears out the heart, and not that the thyroxin has any purely toxic effect on the heart muscle. Early diagnosis and good surgery, with the intelligent use of x-ray, will prevent these cases.

Essential hypertension is a young man's disease and runs in families. Anyone coming from a family with these tendencies should begin early to avoid over-eating, with its attendant result of overweight.

Arteriosclerosis affecting the coronaries is a common cause of heart disease in the aged, but some families show a tendency to develop these conditions as early as the fourth decade, and members of these families have good reason to consider their arterial tree. They should not embark in strenuous vocations but should select occupations with small responsibilities, regular hours, and in which the other fellow has all the worry. Much rest is a great help in both the prevention and treatment of this condition. If the pulse rate is reduced by only ten beats per minute when the patient is recumbent, the amount of blood moved in an hour is about 36 liters less than when he is upright. Fatigue, then, is a great factor in causing both anginal pains and attacks. Rest and long vacations are both the remedy and preventive measure.

The ideals we hope to attain are, I believe, embodied in the conclusion of an address by Frankel<sup>3</sup>, which I quote: "Whenever we can adequately protect the child against bacterial invasion, when we can give him clean heredity, when we can teach him personal hygiene and give him a proper mental attitude, freedom from care and worry, and opportunities for rest and recreation, we shall have entered that newer campaign which spells the post-



ponement of disease and the promotion of physical, mental, and moral health."

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#### DISCUSSION

DR. W. W. WAITE, El Paso, Texas (opening): I had a chance to argue with Dr. Wylder while coming here, as we had a discussion on the train. He has gone into a subject that has worried me a good deal. I have around 25 specimens of rheumatic hearts, one from a young man, about 24 years old, an athlete, who had done the hardest kind of athletic work, and suddenly broke down. Another is that of a traveling man who applied for life insurance but was turned down because he had a heart lesion, but he exposed himself to bad weather and had an acute attack and died. If these men had taken care of themselves as Dr. Wylder said, they would probably be alive today. A few years ago I went over all my rheumatic heart specimens microscopically and studied them for the presence of Aschoff's bodies, which were present in all but one case. This was a case of aortic stenosis in a person around 50 years of age, and no evidence of rheumatic infection, so far as Aschoff's bodies were concerned, could be found. Once you get a case of rheumatic heart disease, it nearly always stays with you. Now we study heart disease, study valves and listen for murmurs, but every one of these cases shows heart-muscle damage, and I feel we do not consider our heart-muscle damage enough—how much it has taken place—and this is the most serious part of the affair. We forget to measure the value of our heart muscle compared with the valve lesion. It is remarkable how patients can get along with a tremendous heart lesion as long as the heart muscle holds up. Long rest in bed is the best thing to help improve the heart muscle. We will be in a position to do more with these heart cases. And the same holds true in adult cases of heart disease, which are the most common, the cardiac infarct type, if they will stay in bed for long periods, and then after getting up will take it easy.

DR. C. F. MILLIGAN (Clayton, N. M.): Both Dr. Wylder and Dr. Waite mentioned long rests in bed as being beneficial. I should like to ask what would be considered as a long rest in bed for the average child.

DR. H. A. MILLER (Carlsbad, N. M.): I was much pleased with Dr. Wylder's paper and enjoyed it very much. There was one thing he mentioned—that heart disease is really a manifestation of a

systemic infection; and I believe that is also true in nephritis. We notice that a great many high-pressure medical men die of heart disease, and sometimes I wonder if the psychic strain has not something to do with it. It seems to me that we Americans have not learned the art of living. We want to be at high speed all the time, both at work and in our pleasures.

DR. F. D. VICKERS (Deming, N. M.): I wonder if Dr. Wylder will be good enough to tell us if the state of tonsils has anything to do with heart disease in children.

DR. WYLDER (closing): I thank you all for the discussion. That heart disease and rheumatism are closely associated, there is no doubt. I do not know, and do not believe that anyone else knows, just exactly what is the cause of rheumatism. I believe Dr. Waite and I agreed on that point, at least, on the train this morning. If we knew the exact cause of rheumatism, we should be somewhere. A few years ago Homer Swift of the Rockefeller Foundation read a very interesting paper on rheumatism, at the Boston Meeting of the College of Physicians, in which he treated it as an allergic proposition. He went on the theory that the allergy manifested itself in the blood vessels and he showed photographs of the blood vessels almost closed for a short distance, and then with their natural lumen, and he considered that as perhaps allergic. The paper was discussed considerably at the meeting and it was essentially the paper of the meeting. That was some six or seven years ago and the paper gradually dropped out of sight and nothing further came of it. If we knew the exact cause of rheumatism and knew how to prevent it, we could go a long way.

As to the question how long to keep a child at rest, my answer is to keep him at rest as long as you can. There has been a very interesting piece of work done by a man whose name I cannot now recall, who found, with children, that instead of keeping them absolutely in bed, if you will seat them in a chair two or three times a day, with change of position, they will use up less energy than if they were in bed. A child gets tired of being in bed and rolls and kicks back and forth and fights with the bed-covers; so, to keep them at rest, they must be kept amused. An intelligent mother and efficient nurse can keep a child interested and keep him quiet. You should keep him quiet as long as you can—the longer the better.

The consensus of opinion seems to be that rheumatism, like tuberculosis, is a chronic condition, quiescent at times perhaps, but when you once get it, it may last for a period of years.

The question of Dr. Vickers in regard to tonsils is hard to answer. Some of our throat men think any tonsil you can see should be removed. Doubtless a great many tonsils should be removed that have not been and perhaps some have been removed that should not have been.

Another point that Dr. Waite brought up which is interesting, is our tendency to examine hearts

and describe valve lesions. Persons die of something else than the valve lesion, if the heart muscle is good. The important thing in examining hearts is to evaluate the heart muscle, if this can be done.

## THE MANAGEMENT OF INTRACTABLE ASTHMA

REDFORD A. WILSON, M. D.

Thomas-Davis Clinic, Tucson, Arizona.

(Read before the Santa Cruz County Medical Society, October 8, 1934.)

A long-standing, chronic type of asthma, usually perennial, in which conventional means of treatment have proved to be of little or no use, may be considered intractable asthma. The patient with this condition arrives at the point where the attack goes on for days without relief; every breath is an effort; adrenalin has ceased to give any relief, and the patient is in a status asthmaticus.

This patient usually gives a history of the attacks having been in progress for hours or even days. He is usually found sitting up, elbows on a table or similar support, struggling for every breath. He is usually cyanotic. The face has a drawn, pinched appearance. The picture is too familiar to need further description.

The management of this case is enough to tax the ingenuity of any doctor. Briefly I shall outline what has proved to me to be the best procedure.

1. Change environment.
2. Administer dextrose intravenously.
3. Give chloral and bromide per rectum.
4. Do not give morphine.

As previously indicated, the usual sheet anchor, adrenalin, has ceased to be effective; the adrenalin, therefore, is discontinued temporarily. The first step of importance is to change the environment. There is always the possibility that the patient is sensitive to something in his own environment, even though he has been studied repeatedly for this sensitivity, with negative results. Hospitalization is preferable. He should be placed in a room which, as nearly as possible, has been rendered free of any possibly offending allergen. This is accomplished by having: A pillow and mattress covered with rubber sheeting; the floor bare; no curtains on the windows; and the furniture,

floor, and walls absolutely free of dust. Only bedding made of long-staple cotton should be allowed. No wool blankets nor down comforters should be used. In seasons when pollen is likely to be in the air, a pollen filter, if available, should be utilized. Drafts should be excluded, although the patient needs liberal ventilation. It is also important that an even temperature be maintained in the room, for temperature changes aggravate this condition.

This patient has neither desired, nor has he been able, to take adequate liquids or nourishment. He is dehydrated and starved. Of all the important measures that can be used, I believe the intravenous administration of dextrose to be the most important. This may be used in various strengths and amounts. I find the optimum strength to be 10 per cent; it furnishes an appreciable amount of food in an assimilable form, and a sufficient quantity of water to overcome the dehydration. It is well to use two to four liters of this solution at one time, letting it run at the rate of about 500 c.c. per hour. Usually these two measures—change of environment and intravenous dextrose—will break up a status asthmaticus.

In addition to the starvation and dehydration, the patient is nearly always exhausted. This terrible, long-standing attack, with its omnipresent exhaustion, suggests morphine to most of our minds. It is my firm conviction that morphine should not be used at this time when the same or better effect can be obtained by the use of chloral hydrate and bromides by rectum—without the dangers of the opiate.

Chloral hydrate, gr. xxv to xl, and potassium or sodium bromide, gr. xxx to lx, given slowly as a retention enema, will prove to be very effective in producing sleep and giving rest to the exhausted patient. Not infrequently this measure, combined with the first two mentioned, will bring about a cessation of the attack.

Many other drugs are used to terminate this type of attack. I will comment briefly on some of the more common ones. Sodium iodide is often very effective. Some authorities claim that this is of no value in emergency; that its action is slow, and that the same effect can be had by oral administration of potassium iodide. I differ with these authorities. In my experience, intravenous sodium iodide, one gm. in 20 cc. of water, has often proved valuable,



especially in those cases in which there is a dry, harassing cough in addition to the expiratory dyspnea. It will loosen some of the thick, white, tenacious sputum. After expectorating this mucus, the patient often begins to improve, and the attack diminishes.

Caffeine sodium benzoate has also been advocated, but in my experience it has been disappointing; however, I have used it in conjunction with an infinitesimal quantity of adrenalin, an amount which will stick to the sides of a syringe, which has contained and which has been emptied of adrenalin. If this caffeine sodium benzoate, together with the minute quantity of adrenalin, is given intravenously, it will often bring about the desired result.

Atropine given during an attack theoretically should be effective if we suppose that the condition is produced by vagus stimulation. On the whole, however, I have had little success with atropine.

Calcium has been advocated and used extensively. Experimental work, blood studies, and clinical application, have shown that it is of no benefit in asthma. My experience clearly agrees with this conclusion.

Aspirin and other coal-tar products are mentioned only to be condemned in a majority of cases. They are of too little value, at best, and potentially much too dangerous to be used in a crisis like this, because so many allergic individuals react violently to coal-tar products.

A discussion of the management of any condition should include important contra-indications as well as the indications. Contra-indications are even more important in intractable asthma than in any other condition. Morphine, the contra-indicated drug I intend to discuss, is the cause of more deaths in asthma than any other agent. If I should ask this audience how many deaths they have seen from uncomplicated asthma not treated by one or more doses of morphine before the patient died, I am sure the number reported would be small. Uncomplicated asthma is very rarely a cause of death. I am sure that, of the deaths asthma does cause, a great majority are preceded by an opiate. If that statement sounds exaggerated, I shall point out definite and undeniable reasons for such a statement, and then discuss them. We shall see that the mor-

phine, instead of accomplishing beneficial results, aggravates the most serious symptom we are combating—improper oxygenation of the blood stream, in the following ways: (1) Morphine slows respiration; (2) morphine abolishes the cough reflex; (3) morphine may be an allergen to which the patient is specifically sensitive.

The intractable asthmatic patient breathes with extreme difficulty. His respirations are markedly altered; the expiration is prolonged and is accomplished only by voluntary effort, using all the accessory muscles of respiration to accomplish the act. There is no pause between the end of expiration and the beginning of inspiration. The respiratory rate is increased, and the patient makes a strenuous effort to get oxygen. Notwithstanding all effort, he is cyanotic. He is not getting sufficient oxygen to his blood. Morphine slows the respiration; slower respiration means that he gets less oxygen into the lungs in a given time, hence the cyanosis deepens. Morphine dulls the patient's sensibilities, thereby decreasing the voluntary use of his accessory muscles, which are essential to the proper aeration of the blood in this crisis. This also deepens the cyanosis more, throws a greater burden on the heart, and makes worse the very condition we are striving to overcome. It makes the asthma more serious and a casualty more likely.

The cough in asthma is sometimes a distressing symptom, but on the other hand, it is a very necessary act. Mucus forms, often in profuse quantities, in the bronchi. This mucus is eliminated by the cough and expectoration. Morphine diminishes the cough reflex. The cough is checked, and therefore the expectoration is lessened. This thick mucus continues to be secreted; and when it is not coughed up, it forms a very effective barrier to the exchange of gases in the lungs. Again we see that the use of morphine has really defeated its purpose—it has made it more difficult to get adequate oxygen to the body; it has slowed the respiration, taken away the voluntary effort in breathing, and has allowed mucus to occlude the bronchi.

The bronchial reaction to any substance to which the patient is sensitive, is familiar to everyone. The wheal appearing at the site of injection of morphine resembles in every re-

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# Southwestern Medicine

Printed by THE A. C. TAYLOR PRINTING CO., Phoenix, Arizona  
Published monthly for the Board of Managers of the four constituent societies.

Vol. XIX

JANUARY, 1935

No. 1

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A new editor may be expected to have something to say relative to his ideas, policies, etc. I sense the honor and the responsibility. I see no reason for any change of policy. May SOUTHWESTERN MEDICINE continue to be as readable with meritorious articles under my guidance as it has been with Warner Watkins at the helm. I regret more than mere words will convey that Dr. Watkins has found it necessary to retire from the editorship. I have assured him that his retirement may be more in name than in actuality for I shall often seek his counsel.

Far above all that the editor can do, however, toward making a medical journal of unimpeachable standards, are the contributors of the scientific articles. The profession of the district covered by SOUTHWESTERN MEDICINE are progressive educated men of medicine of the same general average as may be found in the so-called centers of medical learning. I have had experiences and opportunities which make me a bit of an authority on this question.

The journal will be judged, physicians and surgeons of the Southwest, by your contributions. If you do your duties to the journal, to the profession, to the laity, and to yourselves, you will make SOUTHWESTERN MEDICINE more valuable in the future than it has been in the past, by your meritorious contributions.

It is not to be expected that we, separated as we are from medical research laboratories, will contribute articles based upon work such as laboratory workers only can do.

Clinical observations, however, may be far more valuable and applicable to practical

problems of medical practice, than are many of the laboratory productions. No reproach is intended upon the laboratory men.

In a laboratory experiment, the worker sets the stage, arranges the players and the atmosphere, and attempts to place the correct interpretations and conclusions upon the results. In clinical observations the stage is prearranged, the players and the atmosphere are there all set ahead of schedule and the duty of the observer is to place the correct interpretations and conclusions upon what is observed.

The clinician often has most precious opportunities to see and know things no other physician ever experienced. It is his duty to describe what he has seen and knows so the others may profit thereby. There are too many high type physicians in our midst who never write a word for medical journals and who have valuable observations, which are being concealed. Let there be a change of heart of these men about medical writing.

I have one deep conviction on medical writing. The thoughts should be put into the fewest possible words. No physician has time to read one per cent of what is published and is worthwhile. My admonition is to write of your experiences but to be brief.

When I first wrote for scientific journals about 30 years ago, I became offended when the editor to whom I had submitted an article suggested changes in my manuscript. I have slowly had a change of heart. I now value a vigorous critic. The friend who hands back my paper with few or no pencil marks upon it and only compliments my paper, is not being helpful like he who cuts my article to pieces, and compels me to rewrite it. Every writer,



especially in medicine, needs a severe critic. If a writer will put an article away until it has been erased from his mind, he may serve as his own critic. Otherwise a fearless critic is all but essential. If I attempt to use a blue pencil freely, I hope not to be misunderstood.

ORVILLE HARRY BROWN.

### MEDICAL AND SURGICAL ASSOCIATION OF THE SOUTHWEST

The revised by-laws of the Association provide for an Executive Committee, composed of the officers and the chairman of the Board of Censors; the president is chairman of the Executive Committee and the secretary of the Association is also secretary of the committee. Among the important functions of this Committee is the appointment of important subcommittees, especially the Program Committee and the Membership Committee.

On January 12th, the Executive Committee met in El Paso and made appointments. Dr. E. J. Cummins of El Paso was selected to be chairman of the Program Committee for the 1935 Annual Clinical Conference to be held in El Paso, with the privilege of selecting the other members of the committee. The Membership Committee was completed by the selection of Drs. Orville Egbert, C. R. Swackhamer and J. G. Moir as the three appointed members. The president-elect (Dr. J. J. Gorman) is the ex-officio chairman of this committee.

An intensive campaign for new members is being planned by this committee. The definite dates for the 1935 meeting will be selected by the Program Committee in conference with the local entertaining society; they will be announced shortly.

W. Warner Watkins, Sec'y.

### A NEW EDITOR FOR THE JOURNAL

After serving for 12 years as editor-in-chief, Dr. Watkins tendered his resignation to the Board of Managers in December, to take effect with the close of the year 1934. At a meeting of the Board, held in El Paso on January 12th, the Board of Managers elected Dr. Orville Harry Brown, of Phoenix, to this office and he has consented to serve in that capacity.

All communications and exchanges should

hereafter be addressed to **DR. ORVILLE HARRY BROWN, EDITOR, 711 PROFESSIONAL BLDG., PHOENIX, ARIZ.**

### THE MANAGEMENT OF INTRACTABLE ASTHMA.

(Continued from page 23)

which the patient is specifically sensitive. There is proof that some people are as sensitive to morphine as they are to any other antigen. If the patient with status asthmaticus should be sensitive to the opiate, the administration of morphine will naturally aggravate the condition it is given to relieve.

Finally, in closing, I want to repeat that patients rarely die of uncomplicated asthma. Those who do die with it, almost universally have had an opiate before death; and when we consider the physiology of respiration in asthma, the pathology of asthma, and the pharmacology of morphine, there is no mystery as to the part morphine plays in bringing about these deaths.

#### SUMMARY

1. The three steps in the management of intractable asthma, which are of primary importance are discussed: (a) change of environment; (b) intravenous dextrose; (c) chloral hydrate and bromides per rectum, for rest.
2. Lesser important measures are discussed, with the results which may be expected.
3. Morphine is definitely contra-indicated, and the reasons for this fact are brought out.

### PUBLIC HEALTH NOTES

**J. ROSSLYN EARP, DR. P. H.**

**Director New Mexico State Bureau of Public Health.**

#### Brucellosis

During last year our laboratory made for the first time cultures of *Brucella melitensis* from blood of New Mexico patients. A patient in Otero county furnished blood containing the melitensis variety and a patient in Chaves county blood containing the abortus variety. It is becoming more than ever a perplexing question to determine how important is brucellosis as a public health problem.

In the early days of brucellosis, when it was still called Malta, or undulant, fever the existence of the problem was discovered by certain inquisitive bacteriologists, in this country

and abroad, who submitted blood specimens sent in for the Widal test to a further test for the specific agglutinins of brucellosis. During a blood survey conducted a year ago in Mora county by Dr. Walter Clarke<sup>1</sup> 1,621 blood specimens taken routinely from all comers yielded 73 specimens—4.5 per cent) that contained some agglutinin for *B. melitensis*. However, only a single specimen agglutinated in a dilution as high as 1 in 80. What do these low titre agglutinins signify? Ohio records<sup>2</sup> include a case of brucellosis which gave agglutination in a titre of 1:1280 four days after the onset of disease and a titre of 1:80 eight months later. It seems likely that the same individual's blood examined twelve months later might have been positive in a titre no higher than 1:20. On the other hand, in Iowa a group of 120 veterinarians were carefully examined<sup>3</sup>. A history suggestive of undulant fever could be obtained from only three of them and yet "40 per cent showed partial or complete agglutination in the lower dilutions from 1:5 to 1:20)" Hasseltine<sup>4</sup> pointed out nearly five years ago that low titre agglutinations might follow either clinical disease or a small dose of infection sufficient to produce immunity without producing clinical symptoms. To which class do our 73 cases in Mora county belong? Doctor Clarke was unable to elicit histories either of clinical brucellosis or of abortion among the local cattle from 20 of the positive cases that he was able to question. All of them, however, were using raw milk of cows or goats.

Now to perplex us still further comes Alice C. Evans<sup>5</sup> saying that a negative agglutinin report is of little significance. "Even in severe cases . . . agglutinins may be lacking in the serum." A fortiori, she concludes, mild and chronic cases may give a negative reaction and goes on to suggest that many cases now labeled neurasthenia may in reality be cases of chronic brucellosis. The intradermal test may prove to be more reliable than the agglutinin test, but already it is clear that this test, too, is not an infallible diagnostic aid.

We must conclude that we do not yet know how important brucellosis is to the public health. One thing we do know: **Pasteurized milk is safe.**

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#### A PREVIEW OF A VIVISECTION MOTION PICTURE

It was our privilege to be invited on the afternoon of January 20, by the Director General of the American College of Surgeons, Franklin H. Martin, to a preview of a film prepared by the American College of Surgeons for the purpose of educating the public on the importance of animal experimentations.

The film depicts the humane manner in which the experimental animals are treated, the luxurious lives they live as compared with those of the street animals and the tremendous good redounding to humanity from the sacrifice of relatively few animals. For example, Banting sacrificed perhaps 35 to 40 dogs in developing insulin and to date a million human lives have been saved as the result of this work.

The film opens with Dr. Martin sitting at his desk. He gives a short lecture on the contributions of vivisection to humanity. He then introduces Allen B. Kanavel, who lectures throughout the film. Great bustling crowds of humanity are shown and it is pointed out that they are composed of robust healthy folk, not pock marked, not rickety, not bow-legged and not misshapen, not hunch-backed, not emaciated and coughing with tuberculosis, not scarred from scrofula, syphilis, etc., etc.—all because of the achievements of medical science; the use of animals contributed greatly to this. Crowds of sickly persons are then shown to emphasize the large amount of work yet to be done. Lazear, Rickets and others who lost their lives in medical research are seen for a moment with appropriate remarks by the lecturer. The audience is speedily taken through laboratories, hospitals, dog kennels, laboratory operating rooms, hospital operating rooms, etc. A dog hospital and ambulance are shown and the speaker points out the debt the family pets owe to their brothers who have been sacrificed in medical research. Hydrophobia, tet-



anus, etc., are preventable in animals as well as in humans. The animal lover should be impressed that vivisection is necessary even for dumb animals. The cattle, the horses, the hogs, etc., are more free of disease as a result of the knowledge gained through vivisection and as the lecturer discusses this subject herds of the animals are seen. Research men have not hesitated to use themselves for experimental work when animals will not answer the purpose. Dr. Park's picture is displayed in this connection.

The work on cancer, pneumonia, etc., are touched upon to emphasize the tremendous amount of work yet to be done. The speaker concludes by saying that medical research including animal experimentations must go on.

The film teaches its lesson in a quiet forceful, unsensational, non-controversial manner, readily understandable to the layman.

The occasion for the production of the film at this time is that a wealthy woman recently bequeathed a large sum of money providing around 200,000 dollars annually with the specific instruction to the trustees to spend it on antivivisection propaganda.

The film is the first, so far as we have learned of efforts to counteract the propaganda which will soon be forth coming. Dr. Martin previewed the film for the first time to approve or disapprove of it. We are sure that he approved. The audience seemed to approve.

The scenario was written by Dr. Bowman Crowell, associate director of the College of Surgeons. Will Hayes, president of the motion picture producers, is now the honorary chairman of the motion picture board of the college of surgeons. It was through his courtesy, influence and belief in the importance of the subject that the interest of the Pathe News film company was obtained and they made the film.

About 75 of the guests of the Arizona Biltmore Hotel were present at the preview and one woman said that she had been an antivivisectionist but was converted by the film.

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### NEWS ITEMS

Dr. Carhart, who has been well and favorably known by many of the physicians of the Southwest for his splendid medical attainments and his general good fellowship, has been transferred to St. Cloud, Minn., where he will be pathologist of a 100-bed hos-

pital of the Veterans Administration. Dr. Carhart has been in Whipple for 10 years. During the past few months he has been in charge of the x-ray laboratory as well as being pathologist. His many friends will miss his presence at the various gatherings of medical men.

Drs. Holt and Kennedy, of Globe, were duck hunting the last days of the season. With what luck we have not been informed.

The Gila county chapter of the American Red Cross had its election of officers and directors recently and among the directors we note the names of Dr. T. C. Harper, W. A. Franklin, and W. A. Holt. In Miami among the directors are Drs. John E. Bacon and Nelson D. Brayton.

Newspaper dispatches inform us that Dr. C. G. Salsbury, senior physician and head of the Ganado mission on the Navajo Indian reservation is slowly recovering from a severe respiratory tract infection. Dr. Emory Main, assistant, has had all he can do to take care of the epidemic which is general among the Navajoes. The 80-bed hospital at Ganado is overflowing with 125 patients. The inclement weather and the soft roads are adding greatly to the problem.

On Saturday, January 12, Drs. David Davis and Warner Watkins, president and secretary respectively of the Medical and Surgical association of the Southwest, with Dr. Swackhamer, Board of Managers of SOUTHWESTERN MEDICINE, and Orville Harry Brown, editor, motored over to El Paso for an evening meeting of the trustees of the above mentioned association and also for a meeting of the Board of Managers of SOUTHWESTERN MEDICINE. Deming was reached for a late lunch at the home of Dr. and Mrs. Moir. After the lunch Dr. and Mrs. Moir joined the party at El Paso, as Dr. Moir is a member of the Board of Managers of the Journal representing New Mexico.

Dr. J. J. Gorman, president elect of the Medical and Surgical Association of the Southwest, entertained the group to dinner.

Dr. W. R. Jamison, member of the Board of Trustees, came in time to get something to eat and attend the meetings after the dinner.

Jeremiah E. Metzger, who has been away from Arizona for eight years dropped into

Phoenix recently and in conversation with him we learned that he is returning to make his home in Tucson, preferring Arizona to other states or countries. He has in recent years made two trips around the world. He does not expect to enter practice.

Dr. Agnes McKee Wallace, former Arizona physician and pioneer, died at Buell, Missouri, December 28, 1934, at age 84. Burial was at Montgomery, Missouri. At one time she was physician for the State School for Boys at Fort Grant.

Norman Ross, M.D., of Phoenix, has been appointed county physician for Maricopa County pending the working out of a plan whereby all the physicians of the county who wish may do medical work for the indigents. A committee composed of Leslie R. Kober, chairman, W. W. Watkins, David M. Davis and Orville Harry Brown was appointed by the president of the Maricopa Medical Society, S. I. Bloomhardt, to work out a plan which might be accepted by the members of the county board of supervisors. The plan was submitted at the last meeting of the Maricopa

Medical Society and by a narrow margin it was voted to continue with negotiations to develop a feasible plan. The new president of the medical society, F. T. Fahlen, was instructed to appoint a committee to find out how many physicians would agree to accept patients under the plan, providing it can be consummated.

Dr. Franklin Martin of Chicago is again at the Arizona Biltmore for the winter. He invited a group of Arizona surgeons and physicians to a preview, January 20, of a motion picture created by the American College of Surgeons, as an educational film to show the accomplishments of medical research directly and indirectly traceable to vivisection (see editorial).

Drs. Fred C. Jordon and R. J. Stroud are members of the Phoenix Orpheus Club.

If the members of our state associations and El Paso medical society will take the trouble to send in news items, this column will be made of considerable interest and of historical value. It is suggested that physicians nominate their wives as special correspondents for Southwestern Medicine.



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Carlos C. Craig, M. D. is now in private practice, his term of office as Maricopa county physician having expired.

December 12, 1934, the Bernalillo County Medical Society, Albuquerque, New Mexico, elected the following officers: Dr. H. E. Rodgers, President; Dr. L. C. Cook, First Vice-President; Dr. L. M. Miles, Second Vice-President; Dr. E. W. Johns, Secretary-Treasurer; Drs. H. M. Goelitz, M. P. Beam and R. M. Mendelson, Censors; Drs. W. R. Lovelace, W. R. Warden, Carl Mulky, C. C. Meacham and H. M. Goelitz, Delegates to the State Medical Meeting.

January 9, 1935, program consisted of Presidential Address by Dr. H. E. Rodgers, read in his absence by Dr. L. C. Cook, and a paper by Dr. W. I. Werner on Childhood Tuberculosis which was well illustrated by slides and x-ray films. Drs. J. B. Ballenger, Howe Eller, Grayson Tarkington and A. J. Wheeler were elected to membership.

Fred G. Holmes, M. D., who has been on a rest cure for a year has returned to his office. He will confine himself to office work.

Dr. Boyd M. Richardson, an ophthalmologist

in the federal service mostly in Arizona for many years, is ill and unable to work. He is living in Phoenix and is able to be around part of the time. He has specialized in trachoma work largely among the Indians.

Dr. Jesse D. Hamer is a member of the board of directors of the Maricopa County Red Cross.

Dr. Trevor G. Browne is participating this month in the Phoenix Little Theatre play entitled "The Late Christopher Bean." He has appeared in previous productions of the Little Theatre.

Dr. Norman A. Ross, newly appointed physician for Maricopa County, addressed the Phoenix Woman's Club on the subject of public health.

Dr. Archie E. Cruthirds, Eye, Ear, Nose and Throat specialist of Bisbee, we have been informed, is spending at least part of his time in the office of Dr. J. J. McLoone. Dr. McLoone's health is such that he has not been able to return to his practice, much to the regret of his Phoenix confreres.

Dr. G. M. Fronskey, of Flagstaff, is district representative of the Boy Scout Council.

## THE SEVENTH ANNUAL CLINICAL CONFERENCE OF DALLAS SOUTHERN CLINICAL SOCIETY DALLAS—MARCH 18th—22nd, 1935

### 14 DISTINGUISHED GUEST SPEAKERS

Dr. Harry L. Baum, Denver, Otolaryngology  
Dr. H. L. Bockus, Philadelphia, Gastro-enterology  
Dr. M. Bodansky, Galveston, Physiological-Chemistry  
Dr. Franklin G. Ebaugh, Denver, Psychiatry  
Dr. Louis Hamman, Baltimore, Internal Medicine  
Dr. Jennings C. Litzenberg, Minneapolis, Obstetrics-Gynecology  
Dr. Wm. E. Lower, Cleveland, Urology  
Dr. Douglas Quick, New York City, Radio therapy-Neoplastic Surgery  
Dr. Fred Wise, New York City, Dermatology  
Dr. H. Earle Conwell, Birmingham, Orthopedic Surgery  
Dr. A. F. Hartmann, St. Louis, Pediatrics  
Dr. Waltman Walters, Rochester, Surgery  
Dr. Harry S. Gradle, Chicago, Ophthalmology  
Dr. E. T. Bell, Minneapolis, Pathology

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## EL PASO COUNTY MEDICAL SOCIETY

(Reported by Dr. L. O. Dutton, Sec'y.)

The El Paso County Medical Society met Jan. 14, 1935, at Hotel Hussman in regular meeting, 7:30 P. M.

Dr. E. W. Rheinheimer, after brief remarks, retired from the president's chair, turning the meeting over to Dr. B. F. Stevens, President for 1935.

Dr. Stevens read a "Report of a Case of Abdominal Actinomycosis." Patient was a white male, 31 years of age. Onset of symptoms was Jan., 1929, with a ruptured appendix. From then until death, there was a declining clinical picture characterized by draining sinuses. Autopsy findings were liver and pulmonary abscesses characteristic of actinomycosis. Dr. L. O. Dutton showed a culture of the organism isolated from one of the draining sinuses and discussed the bacteriology of actinomycosis.

Dr. E. D. Strong reported briefly six cases of actinomycosis with lesions about the rectum.

Dr. J. W. Laws mentioned a case of pulmonary actinomycosis with fatal outcome.

Dr. W. W. Waite described the tissues removed at autopsy from Dr. Steven's case.

Dr. J. W. Laws presented material from the State Association showing the unenviable position of Texas in Public Health matters. This presentation was part of the State Association's effort to obtain an increase in Public Health appropriations by familiarizing the public with the facts in the case.

A motion was made by Dr. T. J. McCamant that this society endorse the movement. This passed unanimously. Dr. Stevens referred the matter to the Committee on Public Health and Legislation.

Dr. Laws suggested and it was so ordered by the chair that the secretary write letters of appreciation for past efforts on health matters to each of our local representatives and senators.

Dr. Chas. Rennick was nominated by Dr. Gallagher and was elected to the Standing Committee on Economics to replace Dr. Laws whose term of service had expired.

Dr. Paul Gallagher moved that the chairman of the Economics Committee for each year be the

member of the committee whose term of service expires with that year. Passed.

Letters were read from U. S. Dept. of Agriculture, requesting information as to the occurrence of human infestation with the Screw worm.

Dr. Strong recalled three cases and Dr. Vandevere one case.

Dr. Stevens detailed a plan of the official nursing bureau to offer hourly nursing service.

On a motion of Dr. Rennick this was given the endorsement of the society.

The financial report for 1934 was read and Dr. Will Rogers was appointed chairman of auditing committee.

Dr. McCamant spoke of the possibility of securing the second floor of the Toltec Club Building as a permanent meeting place. Dr. McCamant was appointed as chairman of a committee to investigate this, with power to pick his own co-workers.

Dr. Gallagher spoke of the relation of the El Paso County Medical Society to the Journal of the Medical and Surgical Association of the Southwest with particular reference to the proposed change in the contract between the Medical and Surgical Association of the Southwest and the Journal. It has been proposed that the association pay the Journal \$100.00 per year instead of \$2.00 per member as previously done. After discussion of the various phases of this change by Drs. Gorman, Egbert, Rheinheimer and Vandevere, it was moved and passed that the two members of the Board of Managers of the Journal from the El Paso County Medical Society be empowered to act for the society.

Dr. McCamant moved to reduce the regular annual dues for 1935 by \$4.00. Passed.

Meeting adjourned 9:20 P. M.

## AMERICAN BOARD OF RADIOLOGY

The American Board of Radiology will hold a meeting during the California State Medical Association at Yosemite in May of this year.

The purpose of meeting will be to examine candidates for qualifications in specialty of radiology. Separate examinations will be given in the different branches of radiology—certificates to be issued in accordance with type of examination completed.



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DR. B. R. KIRKLIN, Secretary,  
American Board of Radiology,  
Care Mayo Clinic,  
Rochester, Minnesota.

## HOW FAR SHOULD STATE HEALTH DEPARTMENTS GO?

Baby's Proper Feeding is the Doctor's Problem. One of the most frequent inquiries received by the State Department of Health is that concerning an infant's diet. It is, of course, impossible for the Department to advise or give suggestions regarding a suitable diet for any infant. It apparently is not generally realized by the laity, that food requirements vary for every infant. Infant may thrive on a given food while the next will not tolerate it. Consideration must be given to the fundamental requirements of each infant such as the protein, fat, carbohydrate, water, mineral and vitamin requirements. So far as is known, breast milk is the only universally suitable food for infants. If a baby is deprived of this he should be taken to the family physician and placed on a proper feeding. It is only after a thorough history has been taken and a thorough physical examination has been made that the proper food can be advised for any infant. It is quite obvious that such service is out of the realm of the State Department of Health.

The Department, however, has literature on infant care that is available on request. The Children's Bureau at Washington also publishes some excellent pamphlets on infant and child care which should be read by every mother who wishes to give her child the best of care and training.—From Ohio Health News, Nov., 1934.

## BOOK REVIEW

A Manual of the Practice of Medicine: by A. A. Stevens, A.M., M.D., Formerly Professor of applied Therapeutics in the University of Pennsylvania; Honorary Consulting Physician to the Philadelphia General Hospital; Consulting Physician to St. Agnes Hospital, Philadelphia; 13th Edition, Revised;

687 pages; Philadelphia and London; W. B. Saunders Company, 1934. Cloth, \$3.50 net.

This edition of a well-known treatise has been thoroughly revised, many sections rewritten and others deleted. In order to bring the subject matter up to date and in accord with recent advances, a large number of new sections are added. The purpose of this book, as in previous editions, is to furnish to the student or general practitioner a manual, or convenient reference volume; it contains concise pertinent information covering very completely the subjects usually included in a work on the practice of medicine.

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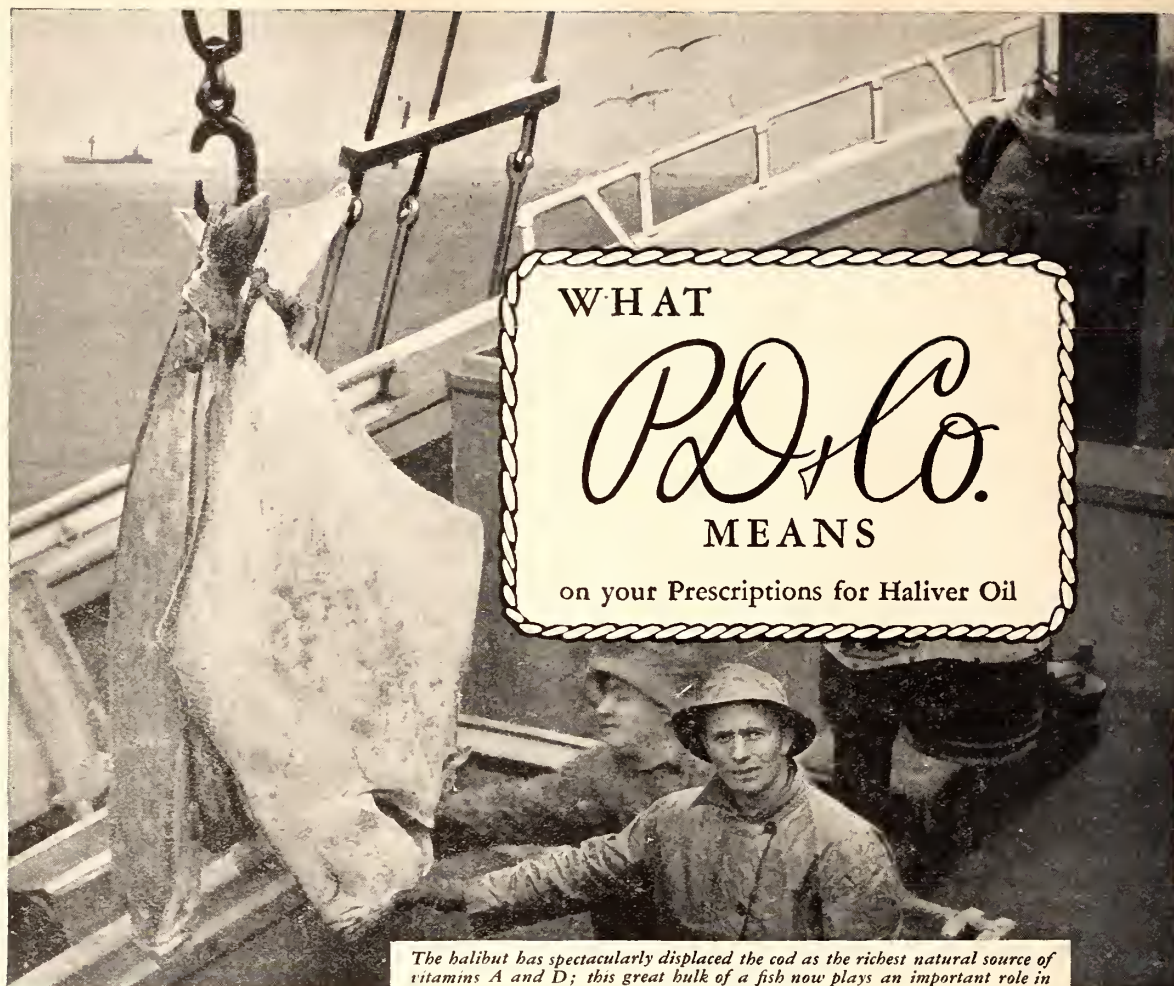
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# SOUTHWESTERN MEDICINE

(REGISTERED U. S. PATENT OFFICE)

Vol. XIX

FEBRUARY, 1935

No. 2

OFFICIAL ORGAN  
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ARIZONA STATE MEDICAL ASSOCIATION  
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# Southwestern Medicine

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VOL. XIX.

FEBRUARY, 1935

No. 2

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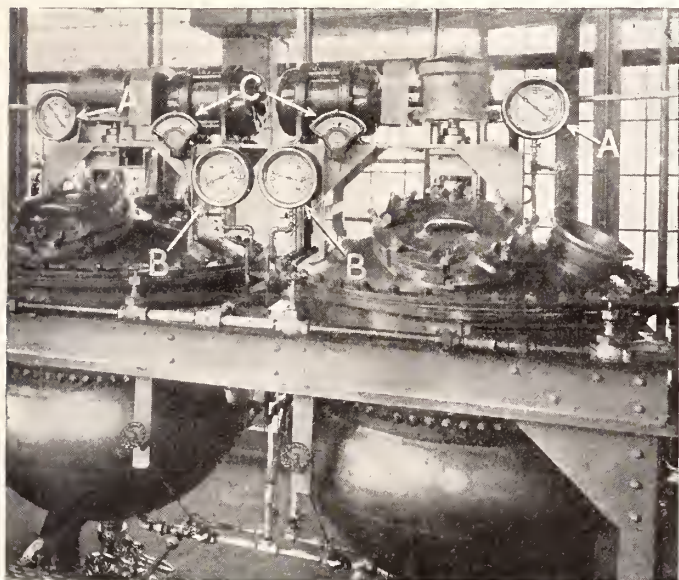
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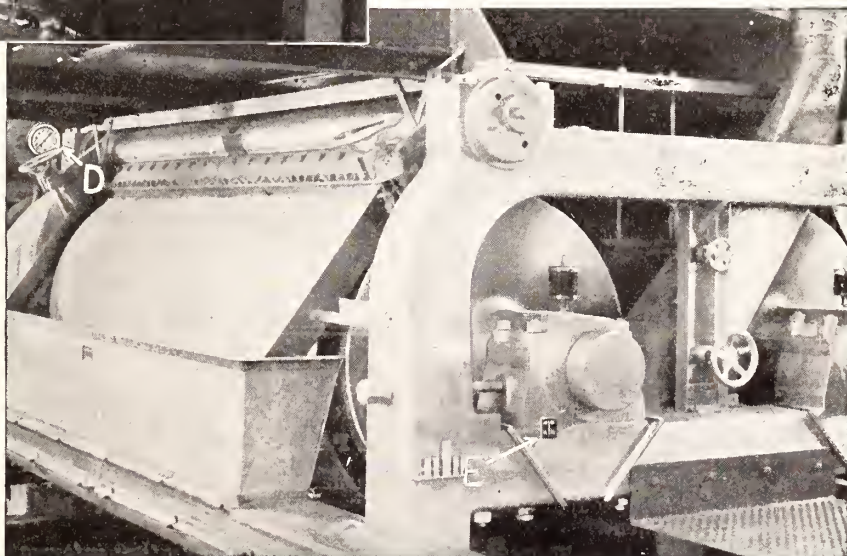
from digestibility studies *in vitro* of breakfast cereals. They also report that single-boiler cooking for more than 15 minutes actually "decreases digestibility because of the formation of lumps produced by too rapid evaporation of water." This clumping is unavoidable without a condenser and with ordinary household utensils.

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*Right*—One of many drum dryers used in the manufacture of Pablum. After the cereal mixture is steam-cooked it is dropped between revolving steam-heated rollers which roll and dry it in a uniform layer of material. Gauge (D) is used as a check on the steam pressure within the drums. Distance between them is maintained within thousandths of an inch by means of a micrometer plate (E).



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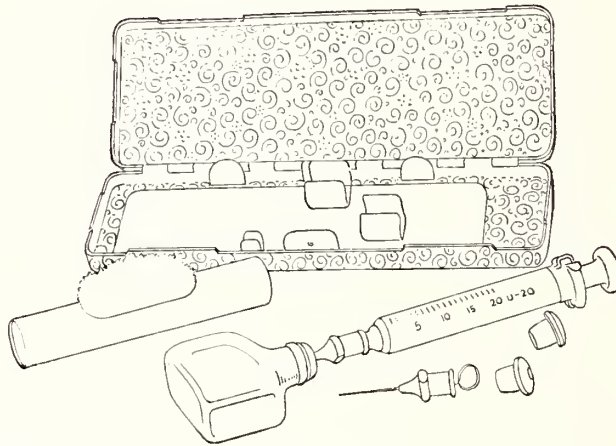
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THE MEDICAL AND SURGICAL ASSOCIATION OF THE SOUTHWEST

VOL. XIX

FEBRUARY, 1935

No. 2

ANNUAL SUBSCRIPTION \$2

SINGLE COPIES 25 CENTS

Entered at the Postoffice at Phoenix, Arizona, as second class matter.

Acceptance for mailing at special rate of postage provided for in section 1103, Act of October 3, 1917, authorized March 1, 1921."

## SURGICAL MORTALITY OF THE SOUTHWEST

Presidential Address

by

DAVID M. DAVIS, M. D.

(On elevation to the presidency of the Medical and Surgical Association of the Southwest, Nov. 22 1934.)

I wish to express to you my appreciation of the honor you have done me in electing me to the presidency of this association, though a comparative newcomer to the Southwest. The Medical and Surgical Association of the Southwest represents better than any other the interests of the profession in this large area composed of different states, but unified by similarities in geographical features, climate, and resources. We have to deal with scattered populations, separated by long distances; we miss the stimulation of large urban centers of medical education and research. As exemplified by the splendid program presented at this meeting, the association can be of tremendous value in nullifying these handicaps by drawing us together at intervals and by providing us contacts with the best of medical teaching from elsewhere as well as from our own ranks.

At this meeting our economic present and future have been fully discussed. I do not know what the future will bring forth, but I do not wish to sound any note of alarm or pessimism. In some directions the way looks dark and threatening, but I cannot believe that the American people will ever be permanently satisfied with any system which makes the physician a low-salaried drudge, and deprives him of incentive to excel in his profession. Unless and until state medicine is foisted upon this country, we physicians will have to stand upon our own capabilities, and know the pleasure and satisfaction of constantly improving

ourselves. This is, indeed, the text of my brief discourse; I believe it may be peculiarly appropriate at this time when many of us may be running the danger of concentrating our minds too exclusively on the necessity of repelling the attacks being made upon us as a profession.

The best way that anyone of us can advertise himself is to be a good doctor, and to become constantly a better doctor. In so doing he will not only serve his own interests, but in addition, those of his patients and, those of the medical profession as a whole. Cultists fatten upon those who have, or think they have, some reason for dissatisfaction with physicians. The physician who falls into a rut, who relies on the rule of thumb learned in medical school years ago, or who rides a hobby, may easily become an actual liability to his confreres. The physician who uses his head, keeps up with the procession, and does first class work not only prospers himself, but brings honor to his brother practitioners as well. While this fact can be illustrated in any branch of medicine, I hope I may be pardoned for drawing an example from my own special field of urology.

Thirty years ago operations upon the prostate caused a mortality of from 30 to 50 per cent and the public had a justifiable fear of them. A comparatively small number of pioneers developed the operation, discovered the principles of preoperative and post operative care, improved the results vastly, and eventually reduced the mortality to two to three per cent. This was, of course, to the advantage of the pioneers themselves; but I ask you to consider, the change in the popular attitude which has taken place and, the hundreds of urologists scattered everywhere in the country who can now successfully devote themselves to prostatic surgery. All this flows directly from the good work of the pioneers. In almost any community there are extensive

fields of work waiting to be opened up by some one with sufficient skill and ability.

It is traditional for doctors to share their knowledge; the prime function of this society is to aid in this sharing and to make it general in this region. It has performed this function well in the past, and I believe will continue to do so in increasing measure in the future.

As I stated a moment ago, we live in a region having a characteristic climate, and this climate has been shown to be very beneficial for certain diseases. It seems possible to me that this climate may have other advantages not yet fully envisaged. In support of this idea I would like to present briefly my own experience. Since coming to Phoenix four years ago I have performed several hundred urological operations with one post-operative death. This patient was a long-time sufferer with bilateral renal tuberculosis. Death occurred two days after suprapubic bladder drainage from adrenal insufficiency—confirmed at autopsy. I have performed several hundred other minor urological procedures with but one death. This patient was 96, and had prostatic obstruction and urethral stricture. Death followed dilatation of the urethra due to ascending renal infection. In other parts of the country before coming to the Southwest my post-operative mortality was, similar to that of others and, certainly greater than this. Most noteworthy is the fact that post-operative respiratory infections have practically disappeared from my records. If my experience can be borne out by others, it would be an extremely important thing for the medical future of the Southwest. I would like to constitute myself a clearing-house for the necessary data, and earnestly request surgeons to consult their records and forward to me any statistics bearing on this matter. If a sufficient body of statistics should confirm my impression, they ought to be made known in no uncertain terms to the entire medical profession.

In conclusion, allow me to state again that I feel deeply honored to occupy this position. I feel sure that the coming year will be a prosperous one for the Association. If and when the Association comes to Phoenix it will be difficult for us to excel the high standard of program and entertainment set in El Paso, but we shall nevertheless try to do so, and I hope

that it will be soon, and that everyone of you may be present at that time.

## MEDICAL ECONOMICS

Presidential Address—January 9, 1935

by

**DR. H. E. RODGERS, President**  
**Bernalillo County Medical Society**  
**Albuquerque, New Mexico**

I wish to say a few words concerning the rapidly shifting trends in our present Medical financial situation. We, members of the Medical profession, stand abreast with the financial leaders of 1935, asking: To the left, or to the right? Undoubtedly, to the left.

In the last year, we have seen approximately 15 per cent of our country's population become socialized in so far as the Siamese twins, Medicine and Food, are concerned.

This is not a theory, but a fact. Does the future hold a further turn to the left, or a shifting back to the right? And, how will it concern us? What can, and what should we do?

Should we profit from the past, and attempt to re-align our forces in a concrete, practical manner, or attempt to mend the situation by vociferous non-sensical mouthings, and ethereal chauvinistic rantings; or should we follow the ultra-conservative Fishbein, and tilt at the windmills of State Medicine? It is for us to decide.

I believe it appropriate to insert here a few items indicating the latest trends toward State Medicine that appeared in the last few months. I culled this item from the weekly magazine, Time, of December 31. "Last week a committee of the Bronx County Medical Society begged New York State for a complete socialization of Medicine, stating that a large number of their colleagues were going hungry, and vacating their offices due to the fact that their erstwhile patients, no longer being able to afford private physicians, were being treated by the free clinics, and hospitals. The Medical Society estimated that the State medical bill runs near 110 millions of dollars yearly. It has also stated that if these figures were raised to 165 millions per annum, the State could provide the treatments, the doctors be paid, and private practice be a thing of the past."



I believe the above figures and statements to be highly debatable, but the thing that strikes me, is the fact that one of our largest Medical Societies in our largest city is publicly begging for financial relief. This is not just a straw in the wind; it is a whole sheaf.

From the Albuquerque Tribune, January 3, in the weekly column edited by our State Health Officer, Dr. J. R. Earp, read by thousands of readers, he discusses Impetigo Contagiosa, and ends his article by advising his readers who are suffering from this, or similar skin diseases to see not their private physician, but their county health officer or nurse. Another straw! a total disregard of the good old stand-by—the General Practitioner!

Again, our chief apostle of the New Deal, President Roosevelt, publicly stated last month that he was in favor of medical insurance.

Congress, in this session, will undoubtedly pass some form of Old Age Pension Bill. Undoubtedly, this will include state medical care.

In my opinion, whether we are in favor, or not, of the end of private practice, it is immaterial—it is on its way. In fact, if one will analyze the situation today, he will readily see that State Medicine is here—possibly, only as an infant in swaddling clothes but mark you! he will grow.

If we must bow to the inevitable, we must bow with our eyes open.

My one and only suggestion: Unionization. Call it any name you wish, but let it be: Unionization. As I recall, there is an old proverb which states: "The Lord helps him who helps himself."

Let us not sit on a high throne, and mumble-jumble about dignity, but rather go out, and meet the facts face to face.

As I near the end, I believe that as a starter—something concrete to help us formulate our immediate plans—an analysis of the present F. E. R. A. set up is appropriate. Is it satisfactory to the physician? To the patient? Do we need a revision of our temporary contracts, or are we satisfied to allow things to drift as they will? Do we believe this a temporary form of state medicine or a permanent one?

Answers to the above will give us something, at least, on which to start.

In closing this short paper, let me reiterate that I have no immediate solution for this vast

controversial subject, and neither do I believe that any individual, or group of individuals has; but I do believe that we should adjust ourselves to changing conditions, making our unified organizations pliable, so that they can be bent from day to day to meet the rapidly shifting conditions.

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## THE TREATMENT OF PNEUMONIA

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FRANK B. KELLY, M. D.  
Chicago, Illinois.

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(Read before the New Mexico Medical Society, at its 52nd Annual Meeting, at Las Vegas, N. M., July 19-21, 1934.)

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The fatality from lobar pneumonia maintains a fairly constant rate as by records of hundreds of patients over a period of years.<sup>1</sup> In Cook County Hospital, Chicago, in 1901, 36 per cent of 338 pneumonia patients died. Between 1911 and 1923, with an average of 650 cases annually, there was a fatality of 36 per cent for the entire period. In 10 of these years the rate was between 34.6 and 38.8 per cent. There are good and bad pneumonia years. Two good years were 1921, with a case fatality of 26.6 per cent, and 1931, when it was 24.2 per cent. Two bad years were 1918, when the case fatality was 41.4 per cent, and the present year in which it has been 41 per cent.

Surveys reveal a similar consistency of fatality of pneumonia where cases are grouped according to age, previous health, habits, and the economic circumstances of the patients studied. Presence or absence of bacteremia as an influence on the course of the disease is not an epidemiological factor, and will be mentioned later. The fatality will probably continue to be the same until a specific method or drug is found, which is capable of ready and easy use in the infection.

Brought forward during the past generation are serum therapy, vaccines, diathermy application, the use of artificial pneumothorax, ethyl hydrocuprein, oxygen therapy, and glucose injections. These are now in use, alone or in varying combinations, dependent on the facilities, training, and enthusiasm of the attendant physicians. The use of oxygen and glu-

cose may more properly be considered as part of the symptomatic treatment of the disease.

In the specific treatment of pneumonia the introduction of serum, containing protective antibodies into the patient's blood stream rests on a well established, scientific basis.

Since 1897 when Washburn immunized a horse with pneumococci and used the serum in the treatment of pneumonia in man for the first time, much progress has been made. Different types of pneumococci have been recognized, each having specific antibodies. The antibodies in the immune sera have been concentrated and refined. Methods have been developed for the rapid typing and recognition of the pneumococcus causing the infection in any given case. Methods of safety have been learned for the clinical application of the sera. Among those who have contributed to this valuable work are Cole and his associates<sup>2</sup>, Felton<sup>3</sup>, Cecil<sup>4</sup>, and Sabin<sup>5</sup>.

The antipneumococcic sera owe their effect to their content of specific bactericidal substances, or protective bodies, which prepare the organism for phagocytosis. These immune bodies are present to some extent in most patients with pneumonia, varying greatly in amount, but not appearing in great abundance until the fifth day of the disease or until the crisis has occurred. They may be neutralized by a so-called "S" substance<sup>6</sup> which the pneumococcus manufactures to protect itself. The "S" substance is rigidly specific for each type of the organism. Bacteremia may develop if the patient's blood lacks sufficient bactericidal substances, in which case the prognosis is much more grave, the mortality being as high as 78.3 per cent in one group of cases reported by Baldwin and Cecil<sup>7</sup>. Pneumococci are rarely present with homologous protective bodies in the blood of the patient. Early administration of a sufficient amount of the homologous protective substance in the form of immune serum increases the concentration of these substances in the patient's blood to a degree that may prevent a pneumococcus septicemia. The most effective results are achieved when such therapy is administered in the first 72 hours of the disease. It is said this may be due to either plugging of the capillaries in the area occupied by the pneumonic process, or to their closure by the extensive exudate present after

the third day. The clinical changes that follow the use of the serum in Type I infections are rapid lowering of the temperature, almost simulating the drop in a natural crisis; marked amelioration of toxic symptoms within 24 hours; and disappearance of pneumococci from the blood stream excepting cases of marked sepsis with hundreds of organisms in each cubic centimeter of blood. There is also reported a definite decrease in the frequency of complications and fatal terminations.

Reactions may take place as with any serum injections, but they are relatively uncommon, occurring in about 15 per cent. They are thermal in nature, mild chills occurring shortly after the serum is introduced. Allergic phenomena are seen occasionally with new sera or with increased dosage. In about four per cent, three to five minutes after the injections, the face becomes flushed, the respiratory rate increases, dyspnea, cyanosis, precordial pain, and urticarial lesions develop. In about 20 per cent serum sickness occurs several days after the serum is administered.

If facilities are available for accurate typing, and serum, particularly Felton's Type I, is obtainable, specific therapy offers a valuable means of increasing the patient's chances for recovery. Sabin's rapid method of typing is carried out by the injection of one cc. of fresh sputum intraperitoneally in a white mouse, followed in three to four hours by a capillary puncture of the peritoneum and removal of a few drops of exudate. A glass slide is marked off into four divisions. A drop of exudate is put on each division. A loopful of a 1-to-10 dilution of diagnostic Type I, II, and III sera are mixed separately with each drop of exudate. Normal saline solution is mixed with the fourth drop of exudate as a control. These mixtures are smeared out and allowed to dry rapidly, then stained one-half minute with fuchsin made up of 10 cc. of saturated alcoholic solution of basic fuchsin and 90 cc. of water. The slide is then washed in running water and examined under a microscope. If clumping of organisms is present in any one of the serum mixtures, the type is thereby indicated. Failure of agglutination of pneumococci with the three type sera indicates the presence of a Type IV organism.

The patient is given an intradermal test with 0.02 cc. of a one to 10 dilution of normal horse



serum. If no reaction occurs, five cc. of the concentrated therapeutic serum are injected intravenously. If it is well tolerated 15 to 20 cc. are given intravenously, one to two hours later, and repeated in three to four hours. Altogether 75 to 100 cc. are injected in 24 hours. On the following day the treatment is dependent on the patient's condition. If the temperature, pulse, and respirations are decreased, only two to three injections, each of 20 cc. are given. If the findings are unchanged or worse, five injections of 20 cc. each are given. The third day's program is a repetition of the second day. It is not likely that after this period more injections will be necessary or effective.

A modification of this program is suggested by Parsons and Sutcliffe, who inject 25 cc. of serum the first four hours, and repeat injections only as the homologous agglutinins are not demonstrable in the patient's blood. Using as an antigen a saline suspension of pneumococci made from saline washed organisms of an eight hour culture of pneumococci of maximum mouse virulence, they mix one drop each of the patient's blood and this suspension on a glass slide, spread the mixture thin, dry it, and stain with a 0.1 per cent aqueous safranin to which a few drops of 10 per cent acetic acid has been added. They examine the stained slide under a microscope for agglutination. By this means they find the average amount of serum required for treatment is slightly more than half the amount empirically used.

Cecil has reported the mortality in Type I pneumonia treated by specific serum 20.1 per cent with the control 31.2 per cent. When the serum was first administered within 72 hours of the onset of the disease, the mortality was 11.7 per cent against 26.8 per cent for the controls. In Type II pneumonia the mortality was 40.5 per cent in the treated cases, 45.8 per cent in the controls, 14.3 per cent when the serum was administered to 20 patients within the first three days, and 65 per cent in the 20 control cases.

In Type II cases treated with homologous serum temperature drop is rare, although it is definitely lowered and the toxemia is decreased. Bacteremia is twice as frequent in Type II cases as in Type I, and has a tendency to occur at any stage of the disease.

Type III pneumococcus has been very re-

sistant to all forms of serum treatment. This has been attributed to its large capsule. Avery and Dubois have isolated an enzyme produced by a bacterium from a peat swamp. This enzyme can dissolve the capsule of the Type III pneumococcus both in a test tube and in the animal body, and may have clinical application.

Of the Type IV pneumococci, which have been subdivided into over 30 sub-groups, one called Type VII<sup>9</sup>, and another Type VIII<sup>10</sup>, have been reported effectively treated with homologous serum in a small number of cases.

Since about 50 per cent of the cases of lobar pneumonia are due to either Types I or II pneumococci, there has been developed a very effective form of specific treatment which can materially reduce the mortality of the disease if it is applied early in the course of the infection.

When proper facilities are unavailable for specific serum therapy, and in the cases due to the types of the pneumococci for which no homologous serum has been developed other forms of specific therapy have been tried.

Vaccine prepared from the cultures of the pneumococcus, and autolyzed pneumococci have been used for their prophylactic effect, and have also been given therapeutically. Those vaccines which are kept up to a high virulence and sterilized by formalin or tricesol have given the best results<sup>6</sup>. They apparently stimulate a greater production of antibodies by the reticulo-endothelial system so that these protective bodies are present in about four times the amount found in the uninoculated controls, although not appearing any earlier in the blood stream. Lambert<sup>6</sup> reports a mortality of 24 per cent in 474 vaccinated cases at the Bellevue Hospital from 1923 to 1931, compared with a death rate of 44 per cent in 482 controls. He used a mixed vaccine containing in each cc. 100 million of a mixture of the different types of pneumococci, 100 million streptococci, and 200 million each of influenza bacilli, micrococcus catarrhalis, staphylococcus aureus and albus. He gave one to two cc. of the vaccine every six hours while the fever lasted, and one to two doses at 12 hour intervals when the temperature dropped to 99°, injecting them in the gluteus medius or deltoid muscles.

Their advantage lie in the lack of necessity

or typing, their ease of administration, and infrequency and mildness of reactions. The mixture of other organisms might vaccinate the patient against secondary infections such as bronchitis and empyema.

Diathermy was first used in the treatment of sailors of the United States fleet by Stewart<sup>11</sup> in 1924. He gave two treatments daily during the febrile period, and one daily during resolution, maintaining the current usually 20 to 30 minutes each treatment, reducing it slowly to zero in two to three minutes. In the small series there was a mortality of 20 per cent in the treated cases, and 43 per cent in the controls. Subsequent to each treatment there is a sense of comfort to the patient, a removal of pain, temporary disappearance of cyanosis, and a period of slow, deep, regular breathing.

Artificial pneumothorax has been used in Europe since 1921 in the treatment of pneumonia,<sup>12, 13</sup> and recently has been tried in this country. The average amount of air injected is 400 cc. with refill necessary 12 to 18 hours after the first injection. It results in separation of inflamed pleural surfaces, relieving pain and allowing easier respiration. It is claimed that the infected lung is put at rest, and the passage of toxins into general circulation is decreased. Profuse perspiration may occur with the withdrawal of the needle. Cyanosis and dyspnea are relieved in 15 to 20 minutes, and the temperature falls in two to three hours. Its general effect seems to parallel that of a crisis during the period the air is in the pleural cavity, and with adequate refills it is claimed the pathological process is ended in 48 hours, and a normal convalescence follows.

Two possible dangers are those of acute cardiac collapse and a secondary empyema.

Ethylhydrocuprein (Optochin), a quinine derivative having a bactericidal effect on pneumococci both in the test tube and in the animal body, was discovered in 1911 by Morgenroth and Levy.<sup>14</sup> It has not been used extensively because the pneumococci became resistant against it in a few days, optic nerve injuries have resulted from its use, and there has been a lack of beneficial results when it was tried in a large number of cases.<sup>15</sup>

Symptomatic treatment of the disease is important both for the physical comfort of the patient and to meet his general needs. Whether

at home or in a hospital, he should be in a well-ventilated room, preferably on the sunny side and in a quiet part of the building. If climate and season permit, the temperature of the room should be about 65°, so he may have the stimulating effect of the cool air. Properly placed screens can protect him from draughts, and hot water bottles, if necessary may be used to keep his extremities warm.

In such an atmosphere he should be clad in light-weight woolen garments affording ready access for examination of the chest. The bed coverings should afford protection against cold, but light enough not to be burdensome. Capable nursing care should spare him every possible exertion; examinations should be made with the least disturbance to the patient. Changing his position from his back to either side at intervals lessens the possibility of hypostasis and massive collapse. Visitors, and business or family cares and worries, should be kept at a minimum.

Tepid sponges, unless they fatigue him, should be given for cleansing purposes, to add to his comfort, and to increase vascular tone. They should be given with the room warm, wetting and drying one part of the body before exposing the next.

Daily evacuation of the bowel may require the assistance of a small enema of plain water, or mild laxative. Failure of stool passage for a week is said to lead to no discomfort.

About eight ounces of fluid per hour, in small amounts, should be given to replace that lost by the excessive sweating and to maintain active kidney function. It may consist of water, lemonade, orange, grape, grapefruit, or pineapple juices, albumen water, tea, coffee, or cocoa. Rectal drip or retention, or hypodermoclysis may be required. Cardiac weakness may necessitate caution in the rate and amount of the intake.

The diet is not of great concern because the duration of the illness is usually short. It is desirable that nutrition and strength be maintained by food, readily assimilated, such as milk, cereals, broths, purees, custards, eggs, milk toast, and crackers. Carbohydrates are readily absorbed and are protein sparing, but may have to be reduced in the presence of tympanites. Nausea may require a temporary restriction of the amount of nourishment; al-



bumen water may be retained when nothing else will.

If the stomach is irritable 25 per cent glucose may be given intravenously four to six times in 24 hours, 200 cc. being given at a time, taking one-half hour for the injection. This furnishes 800 to 1200 calories daily. Clinical signs of improvement in the circulation may also be observed after the intravenous injection indicating a direct effect on the heart muscle.

Chest pain may be controlled by use of an icebag, not water bag, electric pad, or flaxseed poultice. With the pain referred to the anterior chest wall the site of irritation is frequently near the nerve roots where the nerve is exposed for a short distance on the inner side of the chest wall. Acetyl salicylic acid gr. x. (0.6 gram), codein gr.  $\frac{1}{4}$  (0.016 gram), and rarely morphine gr.  $\frac{1}{8}$  (0.008 gram) may be required so sleep may be obtained. Morphine should be used with caution, particularly after the third day, as it may depress the respiratory center, and is believed to paralyze the action of the "sympathetic adrenal" system."

Cough, if dry and purposeless, may be controlled with codeine gr.  $\frac{1}{4}$  to  $\frac{1}{2}$  (0.016-0.03 gm.) every four hours, or gr.  $\frac{1}{10}$  (0.006 gram) every 10 to 15 minutes for several doses. Steam inhalation of the compound tincture of benzoin may be helpful. With mucus present in the bronchial tubes, an expectorant should be given, such as ammonium chloride gr. five to 10 (0.3 to 0.6 gm.) potassium iodide, gr. one (0.06 gram.) wine of antimony or wine ipecac each minims three (0.2 cc.).

Sleeplessness is sometimes a problem, and any pneumonia patient may at times be delirious, when he may attempt to get out of bed or otherwise unnecessarily exert himself. Small doses of bromides is the safest sedative. Trional gr. 10 (0.6 gm.) in warm milk or paraldehyde drams two (8.0 cc.) in orange juice may be effective. Phenobarbital should be used with caution as it may cause agranulocytosis in patients. Chloral produces necrosis in the liver.

Support of the heart is always an important problem in lobar pneumonia. Digitalis is the drug most relied on to maintain the circulation. Electrocardiographic tracings demon-

strate that it acts on the heart in the febrile state of pneumonia, as shown by prolongations of the P-R & R-T intervals, and changes in the "T" wave. Opinion varies as to its routine use in pneumonia with the objective of having the heart partially digitalized with the hope of more prompt response should evidence of cardiac weakness develop. Carefully controlled observations indicate such routine use does not contribute to the welfare of the patient, and may be harmful." It is better to be guided in each case by the condition of the heart. In cases of pre-existing cardiac disturbance, such as auricular fibrillation, or marked valvular disease, with associated muscular changes, digitalis should be started immediately. If signs of cardiac weakness develop during the infection, stimulation is desirable. Beginning cyanosis of the ears, lips, and fingers, irregularities in the rate and quality of the radial pulse, increase of the right heart dullness, faintness of the heart sounds, shortening of the long pause, decrease in the pulmonary second sound, and falling systolic blood pressure are significant indications that the heart muscle is weakening.

The official tincture of digitalis or the powdered leaf are satisfactory preparations for securing the necessary stimulation. The dosage varies with the urgency of medication;  $1\frac{1}{4}$  drams (five cc.) of the tincture, or  $1\frac{1}{2}$  grains (0.1 gm.) of the powdered leaf, given every eight hours for three doses will usually digitalize the heart and the effect may be maintained by 15 minims (1.5 cc.) of the tincture, or  $1\frac{1}{2}$  grains (0.1 gram) of the powdered leaf, three times daily. Smaller initial doses proportionately increase the interval before digitalization occurs, the maintenance dose alone securing the effect in a week. For extreme urgency several preparations in ampules are available for intravenous or intramuscular injections. They may also be required if there is difficulty in oral administration. With pulmonary edema, atropine ( $\frac{1}{40}$  grain, 0.0012 gm) may be of assistance, if given hypodermically. Venesection, rarely employed at present, with the removal of 300 to 500 cc. of blood, may be a life-saving measure in either pulmonary edema or marked stasis with right heart dilation. Adrenalin is sometimes an excellent drug to use, for example with lowered blood pressure, dilatation of the peripheral

capillaries, and weak heart muscle, or in cases of sudden cardiac collapse. The dosage is five to 15 minims, repeated at intervals of 15 minutes to an hour for several doses.

Blood gas analysis of the arterial blood of patients with pneumonic consolidation have shown markedly diminished oxygen content in cases, occasionally as severe as that which experimentally will cause cyanosis, rapid pulse, dyspnea, nausea, vomiting and delirium.<sup>17</sup> When oxygen has been administered at a saturation of 40 to 60 per cent, the oxygen content of the blood is raised to the normal value and the symptoms are relieved. The oxygen room or chamber is the most satisfactory method of giving the gas; the tent works well if it is not too small. The nasal catheter can give good results if the end of the catheter is passed down below the level of the tongue and the flow of oxygen be regulated so that two liters per minute are given.

#### SUMMARY:

There is no tendency toward a natural decline in the case fatality rate in lobar pneumonia. Type specific sera are available which, if used early in the course of the disease, can materially reduce the mortality in perhaps 50 per cent of the cases. There are other forms of specific treatment, apparently equally applicable to infections from any of the types of the pneumococci. The general care of the patient may have an important bearing on the welfare of the patient.

While there is no known treatment by drugs which will routinely cure pneumonia, there are available remedies which properly used may aid in re-establishment of functions which have been interfered with by the disease, and if judiciously used may enable a patient to go through a critical period to a favorable outcome.

Anxiety to omit nothing which may contribute to recovery may lead to over treatment. One of the most important points in the treatment of the pneumonia patient is the intelligent care given him by the physician and nurse.

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#### DISCUSSION

DR. O. I. NESBITT, Espanola, N. M.: There is one question I should like to ask Dr. Kelly and that is in regard to the use of cathartics in these cases.

DR. FRANK H. AUSTIN, Carlsbad, N. M.: The cost of the serum for treatment of pneumonia is prohibitive in many instances. Using 100 c.c. of serum the first day, 50 c.c. the second day, etc. is entirely too expensive and out of reach of the pocket-book of the average patient. Perhaps Dr. Kelly can tell us of some way of lowering the cost.

DR. R. O. BROWN, Santa Fe, N. M.: I was an interne at the Cook County Hospital at one time and am wondering if methods of treatment have changed. We were not able to get expensive drugs such as pneumonia sera. In regard to the mortality rate, I am wondering if the records of the private hospitals might not show better results than those of the County Hospitals. After all a County Hospital is a charity hospital and cases are brought there of all types, mostly out of the classes less well off intellectually and financially. Cowboys who have been out on the range for years and then come to the city for a vacation, get on a spree, are picked up on the streets after being exposed to all kinds of weather and taken to the hospital with pneumonia are bad risks and so are the same type of patients more often found in cities. In private hospitals, where there is a higher class of patients, probably the mortality rates do not show such a high percentage.



DR. F. D. VICKERS, Deming, N. M.: In lobar pneumonia we sometimes get very definite results from large doses of cold vaccine. Probably a protein reaction—which greatly modifies the severity of the pneumonia. I wonder if the serum treatment is often more than this.

DR. KELLY (closing): For the most part we use a very mild laxative such as mineral oil or milk of magnesia. We do not give saline cathartics.

As far as the cost of serums is concerned, it is true they are high. Most of our work was done with serum which was given us. At the present time it is being distributed free of charge in Massachusetts and in New York City. They are not being used in great quantity. There are patients who can well afford to pay the extra cost.

As to the mortality rate, in any given group or type of case, the rate will stay about the same over a number of years. If you take a single year, groups of cases under the same kind of care may vary in mortality rate. One year we had approximately one hundred cases in one ward with a mortality of 25 per cent, while in another ward there was a mortality of 40 per cent, with exactly the same kind of care in both wards. Why the difference I do not know. We tried to standardize the case fatality, but could not find any cause for the variation. Taken over a long period of time the rates remain about the same. The Massachusetts General Hospital checked back for over a hundred years and each ten year group ran about 31 per cent mortality. At the private hospitals there are fewer cases and it is difficult to draw conclusions from them. Although the mortality does not seem so high, perhaps it is due to their greater use of oxygen.

Vaccines have not been used to any great extent. They seem to give very satisfactory results according to some investigators, especially if they are made of an organism which has been kept at a very high virulence. I should like to see more use of controls when vaccines are used.

## A REVIEW OF 268 APPENDECTOMIES

S. H. NEWMAN, M. D.  
El Paso, Texas

### FOREWORD

There 238 cases comprise the entire number of acute appendicitis cases operated on in the City-County Hospital for the seven-year period from 1926 to 1932, inclusive. Further back than this, the records do not extend. They do not include fifty-nine of the operated cases for chronic appendicitis, nor do they include cases where appendicitis was found to be secondary to some other pathology.

Something like 600 of the records were studied and it was with a great deal of care that these 268 were selected as representing all the acute primary cases operated upon. Most of them were verified by the pathologist. Probably forty or fifty other acute cases that were not operated upon, are not included, for the reason that in many the diagnosis was not proved and in others the outcome was unascertainable—several leaving the hospital during the attack.

Much credit is due Miss Gannon, historian at the hospital, for her care and patience in obtaining the records and re-filing them afterwards. Also, Mr. Alex Powell, statistician at the City-County Health Department, is deserving a note of appreciation for furnishing the figures for the city at large from which Table 11 was compiled.

It is recognized that, in a small series like this, the figures arrived at are by no means a true index of actual conditions and it is not with that intention that this paper is being presented. Rather, it is with the hope that it may serve to stimulate similar efforts in our other hospitals, to the end that we may eventually have sufficient data from which a complete survey may be made, which would then show actual conditions as they exist here in El Paso.

"Appendicitis accounts for a large percentage of our surgical mortality. According to Wilkie, of Edinburgh, the death rate from acute appendicular disease is as high today as it was twenty years ago. This is true despite extended hospital facilities, improved means of transportation, greater appreciation by the public of the danger involved, and increase of capable surgeons. Lowe, in reviewing the history of appendicitis in Missouri, found that the number of deaths from this cause, only 531 in 1924, gradually rose to 577 in 1929. The average mortality rate is higher than 10 per cent in the United States. In some sections the rate is as high as 21 per cent. In Lowe's series, 38 per cent of all cases had been given castor oil, salts, or pills, by parents or physicians, before entering the hospital. In the hands of the best surgeons, the operative mortality rate for appendicitis runs from 1.5 per cent to 4. per cent."

By referring to Table 11, we find that in our

own city the death rate from this disease has steadily increased, jumping from 21.3 per 100,000 in 1930 to 24.7 in 1931, and 34.5 in 1932. This, according to Bower<sup>2</sup>, exceeds by far the mortality rate for the twenty-five largest cities in the United States—Philadelphia being the lowest, with a rate of 14.4 and Kansas City, Mo., the highest, with a rate of 26.4 per 100,000 population.

Of all the acute diseases producing death in 1932, appendicitis stands fourth on the list here in El Paso, being surpassed only by pneumonia, with 140 deaths; diarrhea and other forms of enteritis, with 108; and influenza, with 91.

All of this is rather discouraging in view of our advances and lowered mortality rates in other diseases and would seem to point to some fundamental weakness in our approach of the subject. Undoubtedly a careful survey by each community of the cases in aggregate would at least be interesting and possibly enlightening. Education of the public is far from complete and that of the profession itself can be improved upon.

The recovery from acute appendicitis does not by any means depend altogether on surgical technic. It has often been said that a patient's prognosis is sealed up within him on leaving the operating table, intimating that the after-care has but little bearing on the outcome. Undoubtedly this, in great part, is true. But it might also be said, with even greater significance, that his fate has already been determined by the time he is first put on the operating table.

Only a few factors enter into the equation of life and death in these cases and probably the least important of these is surgical technic. If this latter is carried out with ordinary skill and judgment and with not too much meddling or bungling, it is all that is required. All the other factors have already occurred by the time the patient has been put on the operating table. The principal ones of these, of course, and ones that cannot be controlled, are the character of the infecting organism and the resistance of the patient. Where a streptococcal infection is present, the patient is generally doomed, no matter what. Other factors, though, and of greater importance than this for the reason that they can be controlled, are the time element and purgation, and it is in

these two that the public and the profession must be educated before we can expect a lowered mortality rate.

The classical picture of appendicitis with its sudden onset of abdominal pain, often in the epigastrium, later localized in the lower right quadrant, accompanied with vomiting, constipation, fever, muscular rigidity, and leukocytosis, is as familiar to the lay public as to the medical profession. It does not ordinarily require much urging on the part of the doctor to obtain consent to an operation, for the public pretty well realizes that appendicitis means operation. But usually, by the time all these symptoms and signs have developed, much valuable time has been lost and the patient's chances of recovery are considerably lessened. It is like waiting for the twenty-four-hour culture report to give antitoxin in diphtheria. And, furthermore, the classical picture may never develop—death supervening before.

The only two signs that can be relied upon in making an early diagnosis are pain on deep pressure over the region of the appendix, and, possibly, muscular spasm. The patient may locate the pain in the epigastrium, the right flank, the umbilical region, or even in the left quadrant, but it can always be elicited by pressing deeply with the finger over the appendix. Similarly, whenever there is inflammation there, pressure will produce a definite reflex contraction of the muscles and this spasm, although it may be slight, can usually be detected by trained fingers, if the patient's attention is distracted while attempting it.

When these two signs are present, the only thing to do is to operate and operate at once, regardless of whether the patient has fever or vomiting or constipation, or what his blood count is. And that is where the rub comes. For it is hard to make the patient and the family realize the seriousness of the condition without more untoward signs. Also, often the attending physician refuses to stand adamant on the urgings of his better judgment and allows himself to be persuaded to await further developments. As well wait for pallor and sighing respirations before attempting to stop a hemorrhage.

Undoubtedly, many cases of acute appendicitis get well without operation—how many we do not know. But we do know that surgery in



these cases has saved many a life and that, when it is instituted in the first six to twelve hours, the mortality is nil, and that, every hour after this, the mortality creeps up.

The ill effects of purgation in these cases are too well understood by us to be more than mentioned. The public, though, still needs considerable teaching along this line.

TABLE No. 1

YEAR	1926	1927	1928	1929	1930	1931	1932	Total
All cases operated .....	14	18	19	45	52	58	62	268
Total hospital admissions .....	1449	1387	1656	2031	2422	2014	2248	13207
Percentage of all admissions .....	0.96	1.30	1.14	2.21	2.14	2.88	2.76	203
Nationality .....	A 2 M10 C 2	A 4 M14	A 2 M17	A 7 M38	A 13 M39	A 11 M45 C 2	A 9 M53 C 0	A 48 M216 C 4
Sex .....	M 6 F 3	M11 F 5	M 8 F 2	M26 F 5	M23 F 29	M24 F 34	M29 F 33	M127 F 141
Seasonal .....	F 8 Sp. 3 Sm.6 W 2	F 7 Sp. 3 Sm.7 W 3	F11 Sp. 6 Sm.6 W 5	F19 Sp.16 Sm.14 W10	Sp.16 Sm21 F 7 W 8	Sp.15 Sm18 F 10 W15	Sp.20 Sm12 F 15 W15	Sp.79-29.5% Sm.84-31.3% F. 47-17.5% W58-21.6%
Number operators .....	5	5	7	6	7	9	7	13
Unruptured .....	M 5 F 5	M 7 F 3	M 6 F 8	M15 F17	M12 F 23	M17 F 27	M14 F 25	M 76 F 108
Ruptured .....	M 1 F 3	M 4 F 4	M 2 F 3	M11 F 2	M11 F 6	M 7 F 7	M15 F 3	M 51 F 33
Age, unruptured .....	Av. 21.7 H 29 L 12	23.2 33 16	23.4 43 1 1/4	22.1 41 7	22.7 50 49	24.6 54 6	19.9 54 6	A22.4 H 54 L 1 1/4
Age, ruptured .....	Av. 24.7 H 45 L 9	25.5 55 4	21.6 42 13	20 42 6	29.4 71 6	20.5 43 6	19 41 6	A22.5 H 71 L 4
No Cases Purgation .....	Unrpt. 0 Rupt. 0	1 4	2 0	2 0	2 6	5 2	6 7	Unr. 18 Rup. 19
Days Sick Before Admission .....	Av. 3.6 H 14	4.2 14	5 30	3 14	2.3 10	2 4	2.4 9	A 2.5 H 30
Unrupt. case .....	L. 1	0.5	1 hr	2 1/2 hr.	7hr.	0.5hr.	4hr.	L 1/2hr.
Days Sick Before Admission .....	Av. 7 H. 14	7.2 29	9 28	2.9 5	3.4 12	2.8 2	3.5 12	A 4.1 H 29
Rupt. case .....	L. 1	1	3	7hr.	16hr.	1	11hr.	L 7.5 hr.
Stay in hospital before operation—Hours .....	Average 18.7 H. 96	14.6 72	5.7 24	17.1 66	11 80	10.9 42	23 192	A 14.8 H 192
Unruptured .....	L. 0.5	2	1	25 Min.	1	1	0.5	L 0.5
Stay in hospital before operation—Hours .....	Average 54 H. 96	62.7 168	7 19	4.8 20	4.7 18	11.8 83	6.7 48	A 14.4 H 168
Ruptured .....	1	2	2	1	1.5	2	1	L 1
Stay in hospital after operation—Days .....	Average 14.3 H. 31	18.4 26	16.4 54	11.9 35	11.6 30	10.5 40	10.5 19	A 12 H 54
Ruptured .....	L. 2	9	7	7	5	3	6	L 3
Stay in hospital after operation—Days .....	Average 19.5 H. 22	25 50	29.5 31	31.1 65	38 80	21.2 42	18 47	A 24.8 H 80
Unruptured .....	L. 12	19	28	10	9	8	11	L 8
Temperature before operation—	Average 100 H 102	99.4 100.4	99.8 104	100.1 103	99.2 103	99.2 102	99.8 103	A 99.6 H 104
Unruptured .....	97.3	98.2	96.4	98.2	97.3	97.8	98	L 96.4
Temperature before operation—	Average 100 H. 101	100.5 102.6	101.3 103.6	100.7 102	99.8 103.2	100.3 100.3	100.5 103	A 100.4 H 103.8
Ruptured .....	L. 99	98	98.1	98.4	98	98	98	L 98
Pulse before operation—	Average 99 H. 136	94 108	102 150	96 120	102 144	94 144	103 144	A 98 H 150
Unruptured .....	L. 68	84	70	80	68	60	76	L 60

A—American or average.

C—Colored—L.—low.

Sm.—Summer

W—Winter.

M—Mexican or male—H. high.

Sp.—Spring.

F.—Fall or female.

TABLE 1—(Continued)

YEAR		1926	1927	1928	1929	1930	1931	1932	Total
Pulse before	Average	97	106	117	106	106	110	115	A 109
operation—	H.	120	140	138	139	140	149	160	H 160
Ruptured	L.	88	76	90	90	66	82	80	L 66
W.B.C. count	Average	19760	14716	11957	13518	12716	13170	14804	A 13800
Unruptured	H.	29000	19000	20800	32000	27250	22900	36600	H 36600
	L.	12800	12150	7150	7150	6000	7100	6200	L 5200
		5	9	7	17	31	37	38	144 caes
W.B.C. count	Average	12100	19760	16933	16900	14300	12133	18523	A 16073
Ruptured	H.	12400	28000	19000	26000	21000	15600	33500	H 28000
	L.	11800	15700	15300	10450	8250	7550	2600	L 2600
		2	6	3	9	16	12	21	69 cases
Poly per cent	Average	78	84	79	83	81	81	80	A 81
Unruptured	H.	84	91	87	90	92	97	96	H 97
	L.	72	79	70	71	58	50	38	L 38
		5	9	5	17	30	37	38	141 cases
Poly per cent	Average	72	83	76	88.5	84	84	80.7	A 83
Ruptured	H.		85	80	95	91	91	92	H 95
	L.		80	71	81	66	71	65	L 65
		1	5	3	9	15	12	21	66 cases
Aver. L.M.	Av. 4.75-1	Av. 9-1	Av. 0.7-1	Av. 25.-1	Av. 11.25-1	Av. 4.9-1	Av. 7.9-1	Av. 6.6-1	
Ratio	H. 6. -1	H. 15-1	H. 5.5-1	H. 3.611	H. 20-1	H. 18.1	H. 28-1	H. 28.0-1	
Unruptured	L. 3.33-1	L. 6-1	L. 0-19	L. 1.6-1	L. 5-1	L. 1.5-1	L. 0.33-1	L. 0-1.9	
	4 cases	5 cases	3 cases	4 cases	8 cases	20 cases	21 cases	65 cases	
Aver. L.M.	Av.	Av. 5.5-1	Av. 1.8-1	Av. 2.16-1	Av. 3.5-1	Av. 3.6-1	Av. 3.6-1	Av. 4-1	
Ratio	H.	H. 13-0	H. 2-1	H. 6-1	Av. 3.3.5-1	Av. 5.91	H. 10.5-1	H. 13-0	
Ruptured	L.	L. 0-3	L. 1.12-1	L. .	L. 0.75-1	L. 4.5-1	L. 0.5-1	L. 0-3	
	0 cases	6 cases	3 cases	1 case	4 cases	4 cases	16 cases	34 cases	
Av. nuclear							Av. 5.5	Av. 5-1.4	
index,							H. 10.	H. 10.	
Unrup.							L. 0.9	L. 0.9	
							15 cases	15 cases	
Ave. nuclear							Av. 1.8	Av. 1.8	
index							H. 4.	H. 4.	
Ruptured							L. 0.2	L. 0.2	
							9 cases	9 cases	
Av. white	Av.	Av. 19250	Av. 19000	Av. 21750	Av. 18750	Av. 13930	Av. 17056	Av. 17490	
cell count,	H.	H. 17000	H.	H. 27250	H. 32000	H. 18400	H. 36600	H. 36600	
Fatal Cases	L.	L. 21500	L.	L. 12500	L. 7150	L. 7800	L. 2600	L. 2600	
	0 cases	2 cases	1 case	3 cases	3 cases	5 cases	8 cases	22 cases	
Aver. poly	Av.	Av. 85	Av. 71	Av. 84.3	Av. 77.3	Av. 84.6	Av. 83	Av. 83.2	
percent.,	H.	H.	H.	H. 92	H. 88	H. 94	H. 92	H. 94	
Fatal Cases	L.	L.	L.	L. 71	L. 70	L. 73	L. 65	L. 65	
	0 cases	1 case	1 case	3 cases	3 cases	5 cases	8 cases	21 cases	
Aver. L.M.	Av.	Av. 13-0	Av. 1.25-1	Av.	Av. 0.75-1	Av. 1.25-1	Av. 3.8-1	Av. 3.9-1	
ratio,	H.	H.	H.	H.	H.	H.	H. 10.5-1	H. 13.0-0	
Fatal Cases	L.	L.	L.	L.	L.	L.	L. 0.75-1	L. 0.75-1	
	0 cases	1 case	1 case	0 case	1 case	1 case	9 cases	9 cases	
Av. nuclear							Av. 1.75	Av. 1.75	
index							H. 5	H. 5	
							L. 0.2	L. 0.2	
Fatal Cases							4 cases	4 cases	
Av. length	Av.	Av. 51	Av. 36	Av. 39	Av. 41	Av. 52	Av. 51	Av. 45	
Minutes of	H.	H. 70	H. 75	H. 85	H. 80	H. 105	H. 130	H. 130	
oper. unrpt.	L.	L. 20	L. 20	L. 25	L. 15	L. 25	L. 25	L. 13	
Av. l'gth	Av.	Av. 30	Av. 38	Av. 43	Av. 37	Av. 42	Av. 49	Av. 45	
minutes	H.	H. 45	H. 65	H. 50	H. 65	H. 85	H. 85	H. 110	
tper. rup.	L.	L. 10	L. 15	L. 30	L. 15	L. 25	L. 25	L. 10	
Total No.	M.	M. 0	M. 1	M. 3	M. 2	M. 1	M. 3	M. 5	
deaths	F.	F. 0	F. 2	F. 2	F. 2	F. 3	F. 4	F. 3	
Deaths	M.	M. 0	M. 0	M. 1	M. 0	M. 1	M. 1	M. 2	
unrpt. cs.	F.	F. 0	F. 0	F. 1	F. 2	F. 1	F. 4	F. 1	



TABLE 1—(Continued)

YEAR	1926	1927	1928	1929	1930	1931	1932	Total
Deaths	M. 0	M. 1	M. 2	M. 2	M. 0	M. 2	M. 3	M. 10
rupt. cs.	F. 0	F. 2	F. 1	F. 0	F. 2	F. 0	F. 2	F. 7
Total oper.	Total 0	Tot. 16.6	Tot. 26.3	Tot. 8.9	Tot. 7.7	Tot. 12.0	Tot. 12.9	Tot. 11.5
mortality	M. 0	M. 37.5	M. 37.5	M. 7.7	M. 4.3	M. 12.5	M. 17.2	M. 11.8
gross	F. 0	F. 28.6	F. 18.2	F. 10.5	F. 10.3	F. 11.7	F. 9.1	F. 11.3
Operative	Total 0	Tot. 14.3	Tot. 14.3	Tot. 6.3	Tot. 5.7	Tot. 11.4	Tot. 7.7	Tot. 7.6
mortality	M. 0	M. 0	M. 16.7	M. 0	M. 8.3	M. 5.9	M. 14.3	M. 6.6
unrpt. cs.	F. 0	F. 0	F. 12.5	F. 11.8	F. 4.3	F. 14.8	F. 4.0	F. 8.3
Operative	Total 0	Tot.	Tot. 60.0	Tot. 15.3	Tot. 11.8	Tot. 14.3	Tot. 21.7	Tot. 20.2
mortality	M. 0	M. 25.0	M. 100.0	M. 18.2	M. 0	M. 18.6	M. 20.0	M. 19.6
rupt. cs.	F. 0	F. 50.0	F. 33.3	F. 0	F. 33.3	F. 0	F. 25.0	F. 21.2
Operative	0	33.3	50	14.3	20	0	28.6	22.2
mort. rup.		1 out of	1 out of	1 out of	1 out of	0 out of	2 out of	6 out of
cases S-D	2 cases	3 cases	2 cases	7 cases	5 cases	1 case	7 cases	27 cases
Op. mort.	0	40	66.6	16.6	8.3	15.4	19.3	22.8
rup. cs.		2 out of	2 out of	1 out of	1 out of	2 out of	3 out of	11 out of
ap. & dr.	2 cases	5 cases	3 cases	6 cases	12 cases	13 cases	16 cases	57 cases

A—Av; Avex—average; —H—high; L—low.

S. D.—simple drain; dr.—drain.

L. M.—lympho-monocytic.

Rup. or Rupt.—ruptured.

Unrupt. or Unrpt.—unruptured.

OP. Mort.—Operative mortality.

Cs.—cases.

Ap.-dr.—Appendectomy and drain.

(NOTE: Table No. 1 contains all the data obtained from the charts. It is given in detail as from it all other tables, with the exceptions of Nos. 10 and 11 were compiled.)

Thus, it will be seen that the lowering of the mortality rate in acute appendicitis is not so much a problem of the surgeon, for surgeons we already have in excellent abundance. It is rather a problem for the general practitioner, who first sees these cases, and of getting him to realize that they must be operated on immediately rather than waiting till morning to get a white blood count or to see if any fever develops. When the general practitioner is thoroughly imbued with this idea, it will not be long before the general public takes it up. Then, probably, we will commence to get results.

#### RESUMÉ OF TABLES APPENDED

The hospital records from which these tables were formulated, are, as a whole, sadly incomplete. Many contain but little more than the operative record. It is suggested that a more uniform plan of history taking be followed. The exact time and date of onset should be noted; history of previous attacks—if none, it should so be set down; it should be stated whether or not purgatives or enemas were given and to what extent and with what result; location of the pain, both at the beginning of the illness and at the time of the examination; vomiting, whether before or after the onset of the pain; and so forth. All of these things are invaluable in compiling statistics, if for no other reason.

It had been hoped that in this series the

harmful effects of purgation could be brought out, but so few charts were encountered that even mentioned this subject, that the idea had to be abandoned. The same might be said of the location of pain at the onset of the illness; only a few went into detail in this matter.

Of anesthetics used, four were local, fourteen spinal, and the remainder ether or ether in combination with ethyl-chloride, ethylene, and so forth. No deaths were traceable to the anesthetic.

In Table 1, it is seen that acute appendicitis comprised an increasingly larger proportion of total hospital admissions year by year, being 0.96 per cent in 1926, and 2.76 per cent in 1932. Total number of cases admitted annually increased from fourteen to sixty-two in that period. The nationality is about what we would expect here: forty-eight Americans, 216 Mexicans, and four colored. Females are in slight preponderance. The average age was 22.5 years. Out of the 268 cases 184 were unruptured and eighty-four, or 31½ per cent were ruptured. Of the unruptured, fourteen, or 7.6 per cent died and of the ruptured, seventeen, or 20.2 per cent died, giving a general mortality of 11.5 per cent. The average stay in the hospital after operation is interesting from an economic standpoint, being twelve days for the unruptured cases and 24.8 days for the ruptured. The temperature and pulse are not very illuminating, the average being 99.6° and

TABLE No. 2 — INDIVIDUAL OPERATOR'S RECORD

Operator	A	B	C	D	E	F	G	6 Other Operators	Total
Total number cases	56	50	49	37	24	22	13	17	268
Non-ruptured cases	42	27	33	26	15	16	9	16	184
Ruptured cases	14	23	16	11	9	6	4	1	84
Mortality all cases	12.5%	8%	16.32%	16.21%	4.16%	13.66%	7.7%	5.88%	11.5%
Mortality non-ruptured cases	4.76%	3.7%	15.15%	11.55%	0	12.5%	0	6.25%	7.6%
Mortality ruptured cases	35.71%	13%	18.75%	27.27%	11.11%	16.66%	25%	0	20.2%
Operative time all cases	Av. 41M	A. 41M	A. 46M	A. 49.6M	A. 45M	A. 57M	A. 63M	A. 51M	46.6 Mins.
	H. 80	H. 110	H. 105	H. 110	H. 100	H. 85	H. 130	H. 145	H. 130
	L. 13	L. 20	L. 10	L. 25	L. 25	L. 35	L. 35	L. 20	L. 10
Operative time non-ruptured cases	Av. 42M	A. 39M	A. 49M	A. 47M	A. 46M	A. 54M	A. 66M	A. 53M	45 Mins.
	H. 80	H. 80	H. 105	H. 70	H. 75	H. 65	H. 130	H. 145	H. 130
	L. 13	L. 20	L. 20	L. 25	L. 30	L. 35	L. 35	L. 20	L. 13
Operative time ruptured cases	Av. 40M	A. 43M	A. 41M	A. 55M	A. 44M	A. 64M	R. 56M	A. 25M	45 Mins.
	H. 70	H. 110	H. 85	H. 110	H. 100	H. 85M	H. 65	H. 25	H. 110
	L. 15	L. 20	L. 10	L. 30	L. 25	L. 45	L. 45	L. 25	L. 10
Ruptured cases S. D.	4	8	8	0	3	0	3	1	27
Ruptured cases appendectomy and drain	10	15	8	11	6	6	1	0	57
Mortality. Simple drain cases	50%	25%	0	0	0	0	33.33%	0	22.2%
Mortality, appendectomy and drain cases	30%	6.66%	37.5%	27.27%	16.66%	16.66%	0	0	19.3%
Deaths	Non-R 2	Non-R 1	Non-R 5	Non-R 3	Non-R 0	Non-R 2	Non-R 0	Non-R 1	14
	Rupt. 5	Rupt. 3	Rupt. 3	Rupt. 3	Rupt. 1	Rupt. 1	Rupt. 1	Rupt. 0	17
A.—Average									
H.—High									
L.—Low									
R.—Ruptured									
M.—Minutes									
S. D.—Simple Drain									
Rupt.—Ruptured									
Non-R.—Non-Ruptured									

NOTE. This table shows the variations in the mortality rates of the different operators. Surgeons A, B, C, and E operated at stated intervals of three months yearly for the entire seven-year period. D, F, and G operated over a one-year period only.



**TABLE 3**  
**Relation of Delay to Mortality—(All Cases)**  
**Hours from onset of symptoms to time of operation\***

	Under 12 hours	12-23 hours	24-48 hours	49-72 hours	73-96 hours	Over 96 hours
No. of cases .....	7	23	51	42	45	83
No. of deaths.....	0	1	6	5	8	10
Mortality .....	0	4.3%	11.7%	11.9%	17.7%	12%

**TABLE 4**  
**Ruptured Cases; 31.3% of all cases\***

	Under 12 hours	12-23 hours	24-48 hours	49-72 hours	73-96 hours	96 hours
No of cases .....	1	4	15	15	16	29
Per cent of all admissions in similar period time .....	14.3%	17.4%	29.4%	35.7%	35.5%	39.9%
Per cent of all ruptured case in series .....	1.19%	4.76%	17.85%	17.85%	19.04%	34.52%
No. of deaths .....	0	1	2	2	5	6
Mortality .....	0	25%	13.3%	20%	31.2%	20.7%

\* 17 cases, including 4 ruptured cases and 1 death not included; no record of time on charts.

NOTE. Tables Nos. 3 and 4 are self-explanatory. It is interesting to note that in the ruptured cases the mortality rate is much lower in the 24-48 hour period than in the 12-23 hour period. Whether or not this would be borne out in a larger series is not known.

98° for the unruptured and 100.4° and 109° for the ruptured. A large number had normal temperature and pulse on admittance.

In blood work, 13,800 whites with 81 per cent polys, was the average for the unruptured; 16,073 with 83 per cent polys, for the ruptured. The fatal cases showed a slightly higher count of 17,499 with 83.2 per cent polys. The lymphocytic-mononuclear ratio was misleading in individual cases, but, when averaged up, was a pretty fair index as to the severity of the cases—the unruptured having a ratio of 6.6 to 1, the ruptured 4 to 1, and the fatal cases 3.9 to 1. Only in twenty-four cases was the nuclear index estimated, so not much information can be gathered as to its value from this small series. However, in these few, the prognostic value seemed to be much more constant in individual cases than did the lympho-monocytic ratio. The average was 5.4 for the unruptured cases, 1.8 for the ruptured, and 1.75 for the fatal cases. In all this blood work, the value seemed to lie more in the prognostic than in the diagnostic field—numerous cases presenting normal blood pictures. Interesting data are seen along this line in Tables 8 and 9. There were twenty-one cases with a white blood count of over 22,000, with six deaths; and there were twenty cases with a white blood count of under 8,000 with four deaths. This group of forty-one cases comprises slightly over 15 per cent of the en-

tire series, yet it contained ten, or 32 per cent, of all the deaths. The highest blood count was 36,600 with 92 per cent polys and the lowest was 2,600 with 65 per cent polys. Both patients died.

The average time consumed in the actual operation seemed a little high especially for the ruptured cases, being 45 minutes for each type.

In the eighty-four ruptured cases, it was thought that some information might be derived from the type of operation performed. But either the series was too small or excellent judgment was used, as the difference is very slight: six cases out of twenty-seven dying where simple drain was resorted to, and eleven out of fifty-seven where the appendix was removed in addition. This gives a mortality of 22.2 per cent for simple drain as against 19.3 per cent for the latter method.

The individual operator's record (Table 2) is interesting. Surgeons "A", "B", "C", and "E" operated at stated intervals over the entire seven-year period, yet their mortality rates show wide fluctuations, being 12.5 per cent, 8 per cent, 16.32 per cent, and 4.16 per cent respectively. With the exception of "E", each had approximately the same number of cases. The operators "D", "F", and "G", extended over a one-year period only, and so their mortality figures are of practically no significance. All but two of the seventeen op-

erations performed by six other surgeons were gleaned from the gynecological service where, on operation, acute appendicitis was found to be the primary disturbance. All but one of these were of the non-ruptured variety and had a death rate of 5.88 per cent. The various operative times do not seem to have much bearing on the individual mortality rate; but one is inclined to believe that, in the aggregate, it is bound to have a perceptible influence.

The relation of delay to mortality **Tables 3 and 4** in the writer's opinion is of greatest importance and, while these tables cover only a very small number of cases, they are in entire accord with similar findings in much larger tabulations. (Bower, 3095 cases; Boland, 4270 cases.) Under 12 hours, from onset of symptoms to time of operation, there were no deaths; 12 to 23 hours showed a mortality of 4.3 per cent; 24 to 48 hours, 11.7 per cent; 49 to 72 hours, 11.9 per cent; 73 to 96 hours, 17.7 per cent. Over 96 hours, the mortality dropped to 12 per cent, probably indicating a rallying of the patient's defensive forces. The preceding figures apply to both ruptured and unruptured cases. In **Table 4**, which includes only the ruptured cases, there is a somewhat similar picture with higher rates, of course, with the exception of the 24 to 48 hour period. Here the rate is only a little over half of what it was in the preceding column. After this there is the gradual rise up to the 96-hour interval, and over that, a sharp decline. Whether any significance can be attached to this low rate in the third column or whether it is merely a coincidence, is not known. No such tabulation of ruptured cases alone can be found in the literature at hand. One wonders if this might not be the most opportune time in which to operate these cases—the time when the patient's resistance is at its highest.

But the lesson to be learned from these figures and in the larger ones compiled by other authors, is that if operation is performed within 6 to 12 hours after onset of symptoms, the mortality is practically nil, but it creeps up rapidly with each succeeding hour. The percentage of ruptured cases to total acute cases admitted has not decreased in the past year, being 29 per cent in 1926, 44 per cent in 1927, 26 per cent in 1928, 29 per cent in 1929, 32 per cent in 1930, 24 per cent in 1931, and 34 per

**TABLE 5**  
**Causes of Deaths**

General peritonitis .....	18
General peritonitis with intestinal obstruction .....	2
Abscess .....	3
Acute dilatation of stomach .....	1
Pulmonary embolus and thrombosis .....	1
Gangrene of lung with early mediastinitis .....	1
Toxic myocarditis .....	1
Cerebral edema with herniation in foramen magnum .....	1
Shock .....	1
Undetermined .....	2

**TABLE 6**

**Record by Decades**

Age years	Patients	Per cent of all cases	died	Mortality
1-10	29	10.7%	4	13.8%
11-20	105	39.2%	9	8.6%
21-30	80	29.9%	9	11.3%
31-40	32	11.9%	6	18.8%
41-50	16	6.0%	2	12.5%
51-60	5	1.9%	1	20.0%
61-70	0	0	0	0
71-80	1	0.4%	0	0

NOTE. The second decade of life shows the lowest mortality rate but the highest incidence.

**TABLE 7**

**Record by Months**

Month	Cases	Deaths	Mortality
January .....	15	3	20.0%
February .....	22	5	22.7%
March .....	37	5	13.5%
April .....	20	2	10.0%
May .....	22	3	13.6%
June .....	33	2	6.0%
July .....	22	4	18.1%
August .....	30	1	3.3%
September .....	19	2	10.5%
October .....	14	0	0
November .....	13	1	7.7%
December .....	21	3	14.2%

cent in 1932. These figures all go to show that the danger of delay has not been sufficiently impressed on the public and general practitioner.

But sending the patient into the hospital at the earliest possible moment is of no avail unless the operation is also done without loss of time. Referring back to **Table 1**, it will be found that, for the entire seven-year period, the **average stay in the hospital before operation** for all cases was 14 hours and in the unruptured cases, the ones in which lies our hope of reducing the mortality, this delay has increased rather than decreased in the past seven years, being 18.7 hours for 1926 and 23 hours for 1932. This is to be deplored and



**TABLE 8**  
**Cases with W.B.C. Counts of Over 22,000 (21 cases—6 deaths)**

W.B.C.	Poly %	Tmpt	Pulse	Time sick on admis.	Rigidity	Findings at operation	Outcome
33600	92	103	144	30 hrs	RLQ	Necrotic appendix	Died
34400	82	99.4	100	72 hrs	slight RLQ	Ac. suppurative appendicitis with gangrenous walls	Recovered
33500	76	101.6	129	7 days	RLQ	Ruptured appendix	Recovered
32000	90	100.4	120	24 hrs	entire abdomen	As. appendicitis, bilateral salpingitis	Died
30800	90	101.6	160	58 hrs	?	Rupt. appen. with append. abscess	Recovered
30600	96	100.4	128	60 hrs	entire abdomen	Gangrenous appen. with rupture and peritonitis	Recovered
30000	90	101	140	48 hrs	"Right side"	Ac. suppurative, retrocecal appendicitis	Recovered
29000	84	101.8	136	72 hrs	RLQ	Ac. appendicitis, normal 6 mos. pregnancy	Recovered
28500	96	99.4	120	48 hrs	RLQ	Ac. suppurative appendicitis	Recovered
28000	88	98	116	?	?	Appendiceal abscess & peritonitis	Recovered
27250	88	103	120	96 hrs	RLQ	Acute appendicitis	Died
26000	92	101.6	90	5 days	ent. abd.	Ruptured appendix	Died
25000	96	102	132	48 hrs	Markd. abdominal	Ac. suppurative appendicitis and peritonitis	Recovered
24400	92	100	90	11 hrs	entire right side	Ruptured appendix with gen'l peritonitis	Died
24600	65	103	140	20 hrs	Board-like	Gangrenous appendix and rupture	Recovered
23750	86	101	140	48 hrs	RLQ	Ruptured appendix	Recovered
23750	84	97.3	68	2-3 days	RLQ	Acute appendicitis	Recovered
23600	87	102.8	132	30 hrs	RLQ	Ac. suppurative appendicitis	Died
22900	85	97	120	24 hrs	"Both recti"	Acute appendicitis	Recovered
22500	94	103.2	130	72 hrs	entire r-side	Ruptured appendix	Recovered
22200	85	102.6	104	72 hrs	RLQ	Rupt'd. gangrenous appendix	Recovered

serves to bring home the fact that our surgeons are not thoroughly awake to the increased risks to which they are subjecting their patients.

**Table 5** gives the causes of death. Peritonitis is responsible for twenty out of the thirty-one cases. The distinction between spreading and local peritonitis is not made on the charts. It should be. Of the other eleven deaths, three are attributed to abscess and one each to acute dilatation of the stomach, pulmonary embolus and thrombosis, gangrene of the lung with early mediastinitis, toxic myocarditis, cerebral edema with herniation in the foramen magnum, and shock. Two were undetermined. Probably some of these, had cultures been made before death, would have been found to be caused by streptococcic septicemia. Out of the thirty-one deaths, fourteen autopsies were obtained. This is 45 per cent for the seven-year period. In 1932, 60 per cent of the deaths were posted.

The second decade of life showed the highest incidence (39.2 per cent), while it and the third decade account for nearly 70 per cent of all cases. Also, the death rate in the second

decade is the lowest, 8.6 per cent. All this, of course, was to be expected and is in line with the usual teaching that appendicitis is a disease of youth. Twenty-nine patients, or 10.7 per cent, were in the first decade, only two cases occurring under five years. Of these twenty-nine cases, twelve were ruptured, which is 40 per cent—a pretty high incidence goes to show the seriousness of the disease in childhood. However, when these cases are analyzed a little more closely, it is found that the average time sick before operation was 6.27 days as compared to the general average for all cases of 3.6 days. So one wonders if this delay, coupled with the fact that these little fellows, being defenseless, are subjected to purgation and other drastic measures to a greater extent than are adults, is not the main factor responsible for this increased morbidity and mortality, rather than any inherent increase in virulence at this age.

The seasonal incidence (Table 7) is greatest for spring and summer and least in the Fall. March, June and August show the largest number of cases. However, the highest mortality occurred during the winter months

**TABLE 9**  
**Cases with W.B.C. Counts Under 8,000 (20 cases—4 deaths)**

WBC	Poly %	Tmpt	Pulse	Time sick on admis	Rigid-ity	Findings at operation	Outcome
7800	94	102	144	24 hrs	Both recti.	Ac. appendicitis and gen. peritonitis	Died
7750	76	98	100	?	None	Acute appendicitis	Recovered
7600	87	99.2	80	?	None	Ac. append. Tbc. peritonitis	Recovered
7550	77	98.4	82	48 hrs	very slight RLQ	Ac. appendicitis, old walled-off rupture	Recovered
7500	81	99.4	100	72 hrs	slight if any	Acute appendicitis	Recovered
7300	38	100	84	72 hrs	None	Subacute appendicitis	Recovered
7300	76	99.4	100	72 hrs.	Marked gen'l.	Rupt'd. append. gen'l. peritonitis	Died
7250	77	98.4	80	20 hrs	Both recti.	Acute appendicitis	Recovered
7150	76	99	84	48 hrs	None	Acute appendicitis	Recovered
7150	.	96.4	76	4 hrs	RLQ	Ac. gangrenous appendicitis	Recovered
7150	71	99.4	88	?	None	Subac. appendix; cystic ovary	Died
7100	79	97.8	92	14 days	None	Subac. append. Tbc. lymph node from cecum	Recovered
7000	68	99.4	94	6 days	"Some" RLQ	Acute appendicitis	Recovered
6600	72	98	76	8 days	RLQ	Ac. suppurative appendix. long stand'g. retro-cecal.	Recovered
6600	76	98.6	80	96 hrs	?	Moderate acute appendicitis	Recovered
6400	71	99.2	100	?	None	Subacute appendicitis	Recovered
6000	58	99.1	92	?	"Some"	Ac. append.; sarcoma of uterus	Recovered
6000	72	98	78	?	None	Ac. hemorrhagic appendicitis	Recovered
5200	72	98	86	24 hrs	slight RLQ	Subacute appendicitis	Recovered
2600	65	?	?	48 hrs	very slight	Ruptured appendix and gen'l. peritonitis	Died

NOTE. Cases in Tables 8 and 9 comprise only 15% of the entire series yet contain 32% of all the deaths.

(19 per cent), Spring coming next with a mortality of 12.6 per cent, and summer and fall with 8.3 per cent and 6.3 per cent respectively.

As stated earlier in this paper, an increasingly larger proportion of total hospital admissions, taken year by year, is composed of acute appendicitis cases, increasing nearly three-fold in the seven-year period. Likewise, by reference to Table 10, it is seen that the percentage of appendicitis deaths as compared to the total hospital deaths, has shown an approximately similar increase, jumping from 1.34 per cent in 1927 to 3.20 per cent in 1932, in face of the fact that the general or total mortality rate for the hospital had shown a slight decrease during the same period. This, taken together with the total gross operative mortality, as given year by year in Table 1, with its gradual upward trend in the past four

years, speaks volumes on our lack of progress in the treatment of this disease.

The same thought is borne out for the City at large (Table 11), where in the past three years the percentage of total deaths due to operated appendicitis has increased from 1.08 per cent to 1.84 per cent, and where the deaths per 100,000 population for both operated and non-operated appendicitis have increased from 21.3 to 34.5 over the same period. (Prior to 1930 the data available at the Registrar's office are not reliable, as appendicitis deaths were often classified as peritonitis or pneumonia or deaths from other causes when the death certificate did not give appendicitis as the principal cause of death.)

#### CONCLUSIONS

1. The mortality rate in acute appendicitis in the City-County Hospital of El Paso and in the City at large, has not been reduced in re-



**TABLE 10**  
**Appendectomy Deaths Compared to Total Deaths**  
**and to General Mortality Rate.**  
**CITY-COUNTY HOSPITAL**

Year	Total Admissions	Total Deaths	General or Total Mor- tality Rate	Operated Appendicitis Deaths	Per Cent of Total Deaths Due to Op- erative Ap- pendicitis Cases
1926	1449	201	13.87%	0	0
1927	1387	223	16.07%	3	1.34%
1928	1656	253	15.27%	5	1.97%
1929	2031	284	13.98%	4	1.41%
1930	2422	312	12.88%	4	1.28%
1931	2014	230	11.42%	7	3.04%
1932	2248	250	11.12%	8	3.20%
Total	13207	1753	13.27%	31	1.76%

2. This increased mortality rate is not due so much to faulty technic—although it behooves each individual surgeon to scan carefully his operative record in an attempt to determine wherein he might have been at fault (vide Table 2)—as it is due to failure on the part of both the profession and lay public to recognize the importance of very early operation. Hospitalizing the patient early is useless unless cooperation on the part of the surgeon is obtained and the case is treated as an emergency one.

3. The increased mortality rate in infancy and early childhood is probably not due so

**TABLE 11**  
**Appendectomy Deaths Compared to Total Deaths and to**  
**General Mortality Deaths**  
**CITY AT LARGE**

Year	Population U. S. Census	Total Deaths	General Mortal- ity Rate Per 100,000 Population	Operated Appendicitis Deaths	Per Cent of Total Deaths Due to Opera- tive Appendi- citis Cases	Non-Opera- tive Appendi- citis Deaths	Per Cent of Total Deaths Due to Non- Operated Appendicitis Cases	Total Mortality Rate of All Appendicitis Cases Per 100,000 Population
1926	94,789	1696	1789.2	9	0.53%	2	0.12%	11.6
1927	96,824	1626	1679.3	12	0.74%	2	0.12%	14.4
1928	98,859	1962	1984.6	5	0.25%	0	0	5.0
1929	100,894	1928	1910.9	7	0.36%	1	0.05%	7.9
1930	102,930	1751	1701.1	19	1.08%	3	0.17%	21.3
1931	104,965	1557	1483.3	18	1.15%	8	0.52%	24.7
1932	107,000	1462	1366.3	27	1.84%	10	0.69%	34.5
Total	100,894	1111.7	1696.5	13.86	0.81%	3.7	0.21%	17.4

(NOTE: The general mortality rate in both the City-County Hospital and in the city at large has shown a distinct downward trend while the percentage of total deaths due to appendicitis has increased considerably.)

**TABLE 12**  
**Delay in Hospital Before Operation**  
**Unruptured Cases.**

Year	2 hours or under	3-4 hours	5-6 hours	7-8 hours	9-10 hours	11-12 hrs.	Over 12 hours	TOTAL
1926-1929 incl.	14	16	5	4	0	4	23	66
1930	12	8	3	0	0	0	12	35
1931	9	12	3	2	2	1	15	44
1932	9	6	6	1	0	0	17	39
Total	44	42	17	7	2	5	67	184

This table would seem to indicate that the surgeons of the hospital have not yet been imbued with the idea that acute appendicitis should be treated as an emergency.

cent years, but on the contrary, has actually shown an increase, in spite of the fact that a larger proportion of cases are being subjected to surgery.

much to increased virulence and decreased resistance as it is to delay and purgation.

4. The lowering of the death rate is not so much a problem of the surgeon as it is of the general practitioner who sees these cases first and in whose hands rests the responsibility of teaching the family or public the seriousness of the disease from the very onset..

5. The only dependable signs in making an early diagnosis are pain on pressure over the appendix and involuntary muscular spasm. By the time the classical picture develops, the patient's life may be despaired of. Blood work finds its chief value as a prognostic indicator, although it must be admitted that it often helps in the diagnosis.

6. Purgation, of course, is to be deplored in all acute abdominal conditions.

7. Opiates, if given only to relieve pain

**TABLE 13**  
**Delay in Hospital Before Operation**  
**Ruptured Cases**

Year		2 hours or under	3-4 hours	5-6 hours	7-8 hours	9-10 hrs.	11-12 hrs.	Over 12 hours	TOTAL
1926-									
1929	incl.	6	10	2	2	0	0	10	30
1930		7	6	0	1	0	1	2	17
1931		3	7	0	0	0	1	3	14
1932		8	6	4	1	0	1	3	23
Total		24	29	6	4	0	3	18	84

(NOTE: What percentage of these, if any, ruptured while in the hospital awaiting operation is impossible to state.)

after diagnosis has been made and as a preliminary to operation, are entirely permissible.

8. It is believed that invaluable information would be obtained if a review, similar to the one presented, were to be made of all the appendicitis cases in the various hospitals of the city for the past several years. Only through information gained by such study can we hope to reduce our mortality.

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**PUBLIC HEALTH NOTES**

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**The Public Health Nurse**

The number of public health nurses in the United States has increased from 3,000 in 1912 to 20,000 at the present time. In New Mexico we had only 11 nurses in 1929 whereas today we have 38. Only two counties are without a public health nurse and since provision has been made in both counties to meet the cost of a nursing service it can reasonably be expected that before long every county in the state will have at least one public health nurse.

The program that has been made in New Mexico must go to the credit of The Commonwealth Fund of New York whose generous subsidy has made possible demonstrations in more than half of the counties. These demon-

strations have convinced not only the counties immediately concerned but also their neighbors so that it may now be said that public health nursing in the state rests on a secure basis of popular demand.

The growth of public health nursing is of considerable importance to the rural doctor. Few of his patients can afford to employ a private duty nurse. The result is that he must either do without much needed help, or he must employ a "practical" nurse whose uneducated influence may be actually dangerous and likely far from ideal. The dilemma caused a lively debate at the last annual meeting of the Colorado State Medical Society; and one does not find in the published report any reference to the public health nurse as a solution. It is possible that public health nursing has not yet made headway in rural Colorado.

The public health nurse solves the above dilemma. In the rural home she demonstrates nursing care. At the doctor's direction she teaches right methods of care and of prevention. She can take more time in each home than the doctor can afford to spend and yet she will have enough time to care for several patients. Even this program cannot be properly developed with the present supply of public health nurses. One nurse working in a county a hundred miles across and among a population of 20,000 or more will obviously be kept busy with quarantine, vaccinations, school inspection and the like. But it is not too soon for nurses and rural doctors to get acquainted and to start planning together for close team work which in the future they will surely enjoy.

This association will be as advantageous to public health as to private medicine. For example, it can be of immense service in the control of rural outbreaks of syphilis. The public health nurse is trained in professional ethics; she understands the need for tact; she has the confidence of the people in the homes which she has visited; she has that same intimate relationship which the doctor himself enjoys. If the nurse can also have the confidence of the doctor she can help him to trace and bring under treatment if needed the contacts of every contagious case.

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## LABORATORY REPORT ON THREE CASES OF UNDULANT FEVER IN NEW MEXICO

by

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Undulant fever has been a problem in New Mexico, but since no one had isolated cultures, either from animals or individuals, one could only prophesy as to the type of *Brucella* prevalent. It was for the purpose of isolating cultures that the laboratory asked for the cooperation of physicians who had undulant fever patients. Personnel and travel expenses were not available for field work, and blood cultures for *Brucella* do not ship well. Therefore, we decided to ask the physician to inoculate guinea pigs with blood freshly drawn, the pigs sent to the physician for this purpose.

On March 5th, 1934, we received a specimen of blood from Dr. J. W. Hale, Grady, New Mexico, taken from his patient, V. T. The serum agglutinated *B. Typhosus* antigen in a dilution of 1-160. *B. Paratyphosus B.* antigen in a dilution of 1-20. and polyvalent *Brucella* antigen in a dilution of 1-1280. The following history was received, with Dr. Hale's consent to inoculate pigs.

"V. T. is a farmer, 47, weighs 150 pounds, and until the present illness has been unusually strong. He has not had typhoid fever or been given typhoid vaccine. There has been no typhoid in V. T.'s neighborhood for 15 years. He has had fever for 114 days. Last November he went deer hunting in the western mountains, and became ill. There is no history of contagious abortion on his farm. The patient uses cow's milk sparingly, uses no goat milk, and is not in contact with goats."

Under date of March 28th, Dr. Hale inoculated two guinea pigs intraperitoneally, each with five cc. of blood taken from V. T. At this

time, the patient had been ill 120 days. His temperature had started to drop, being normal in the morning, starting up about 10 a. m., and dropping to normal about 10 p. m., and never rising above 100 degrees.

On May 10th, two cc. of blood were taken from each of the pigs. The sera gave no reaction with the polyvalent *Brucella* antigen. One pig was autopsied, and no abnormality could be found in its organs; May 24th, the second pig was autopsied, and again only normal conditions were found.

We received a specimen of blood from Dr. E. P. Simms, Alamogordo, New Mexico, July 30th, taken from his patient R. S. The serum gave no reaction with either *B. Typhosus*, *B. Paratyphosus*, or *B. Tularensis* antigens, but agglutinated the polyvalent *Brucella* antigen in a dilution of 1-640. Dr. Simms, upon request, inoculated and returned guinea pigs shipped to him and later sent the following case history:

"Patient's name: R. S.; age 25; single, Spanish-American; occupation—farming and stock-raising; first seen while I was on a water inspection trip in Nogal Canyon, July 27, 1934. At that time he approached me on crutches, and wanted me to give him something for his rheumatism. After questioning him closely, Malta fever was suspected. He was brought to town and blood sent to the laboratory that day. The report returned was 'positive' for Malta fever. Guinea pigs were inoculated with five cc. whole blood August 11.

"About June 1st, 1934, after he had been engaged in shearing goats for a period of approximately thirty days, he became ill. He stated that he thought he had a 'cold.' The symptoms of the illness consisted of headache, general malaise, bad taste in the mouth, and fever, which persisted for a period of about 20 days, with intermittent spells during which the patient felt better. He then, about June 20th, began to experience pain in the right shoulder and back of the neck. The pain was continuous and worse upon movement. It was followed within a few days by a pain in, and swelling of, the little finger of the right hand. The shoulder, neck, and finger improved, but in the course of a week, the patient began to have a severe pain in the right hip, which radiated downward to the right leg. The pain

was so intense that the patient could not walk without the aid of crutches. During all this period the general malaise, fever, and headache continued, and as a result of the pain in the hip the patient was confined to bed for about a month.

"In September, approximately three months after the onset of his illness, the patient began to have pain and soreness in right lower quadrant of the abdominal wall. Within a few days the right testicle became greatly enlarged, tender and painful. As a result of this he was confined to bed for another period of about three weeks. At the present time he has been out of bed approximately three weeks, and has no subjective symptoms other than that of marked weakness.

"At no time during the course of his illness has the patient had any symptoms referable to his gastro-intestinal tract, cardiovascular system, or urinary system. His appetite has been good throughout.

"I found his temperature ranged to 102 degrees F. Upon the last examination, December 9th, 1934 there were no objective or subjective findings other than marked loss of weight, extreme pallor, and extreme weakness. His nutrition would probably have been better had he had an adequate diet, but the family has been in very poor circumstances. The man states that he never drinks goat's milk and has had no cow's milk.

"The most interesting part of my investigation is revealed by the contact with four other men who live in the neighborhood, one the brother of the patient, all of whom have had almost the identical type of illness, i.e., a prolonged febrile illness, marked by headache, malaise, weakness and arthritic-like type of pain moving from one point to another. There were no testicular complications among this group of four. From none of them was I able to elicit any history of continued high fever, or any abdominal or gastro-intestinal symptoms. One case became ill last August and is now apparently recovering. This case experienced swelling of the joints. All of these men are in contact with goats a part, if not all the time."

The two pigs inoculated August 11th with four cc. of blood each from R. S. were bled September 24th. Blood from pig one aggluti-

nated the *Brucella* antigen in a dilution of 1-80. Blood from pig two gave no reaction with this antigen. Pig was autopsied September 27th. Two lobes of the liver were pitted with small gray, translucent nodules. The spleen was greatly enlarged and granular. No change in the testicles was observed. Lungs were normal in appearance. Plates of liver infusion agar (1) were inoculated from liver and spleen. Part of the plates were incubated in a jar with approximately 10 per cent of the air replaced by carbon dioxide; the remainder of the plates were incubated in normal atmosphere. After 72 hours colonies were present on both sets of plates in equal numbers. The organism was a very short, Gram negative rod which was agglutinated by a serum from a known case of *Brucella* infection in a dilution of 1-1,280. This culture was sent to I. Forest Huddleson, Michigan State College, for identification. He found it to be *Brucella melitensis*. (*Brucella melitensis* var. *melitensis*.)

The laboratory received a specimen of blood, on August 11th, from Dr. W. N. Worthington, Roswell, New Mexico, taken from his patient J. D. The serum gave no reaction with either B. Typhosus or B. Paratyphosus antigen, but agglutinated the polyvalent *Brucella* antigen in a dilution of 1-640. Upon request, Dr. Worthington sent the following history and consented to inoculate pigs.

"J. D. was on a camping trip on the Conejos river, Archuleto county, Colorado, from June 30th until July 6th. While there she drank from the stream. On her return through Rio Arriba county she was greatly distressed by dust. At no time did the patient use goat's milk or come in contact with goats or cattle. She has consumed only pasteurized milk at home but used raw cow's milk during the trip. The first symptoms were noticed July 18th when she suffered with general malaise and headache. J. D. went to bed July 25th. She had a remittent fever for ten days, and then a period of very little fever. From August 15th until August 20th her temperature ranged from 97 degrees to 104.6 degrees. During this period of high temperature the patient had chills once or twice daily but during the following two weeks the chills occurred only occasionally. Five weeks later, for a period of three days, the patient had a high temperature



but did not have chills. She showed marked improvement during the next two months with only an occasional rise in temperature. At this date (December 22) the patient is still unable to resume her work."

The two pigs inoculated August 22nd with the blood from J. D. were bled September 27th. Their blood gave no reaction with the *Brucella* antigen. They were bled October 11th, and gave no reaction. On November 8th they were bled again, and blood from one pig agglutinated the *Brucella* antigen in a dilution of 1-2560. The second pig gave no reaction. The reacting pig was autopsied, November 9th. A few translucent spots were found on one lobe of the liver. The spleen was greatly enlarged and granular. Liver infusion plates were inoculated from the liver and spleen. Plates were incubated in the atmosphere and in the jar with 10 per cent of the air replaced by carbon dioxide. After 72 hours, colonies were present on plates incubated in the jar. There was no growth on the plates incubated in the atmosphere. The organisms grown were short, Gram negative rods, and were agglutinated by a *Brucella melitensis* immune serum, as supplied through the kindness of Dr. W. H. Kellogg, Department of Public Health, Berkeley, California, in a dilution of 1-2560. After several transfers this culture grew sluggishly in the atmosphere. The culture was sent to J. Forest Huddleson, Michigan State College, for identification, and he found it to be *Brucella abortus* (Bang). (*Brucella melitensis* var. *abortus*.)

#### CONCLUSIONS

Two species of *Brucella* organisms were isolated from undulant fever cases in New Mexico. This was accomplished by inoculating guinea pigs with fresh, whole blood from the patient.

#### TWO'S COMPANY—THREE'S A CROWD

"Sickness is a matter intimately personal. It is a time when sincerity of dealing cannot be compromised nor human feelings flouted.

"How disturbing, then, is the thought of having a third person or alien party exercise an influence on the relationship between the patient and his physician, the two persons who, above all others, are most vitally concerned when sickness enters the home.

"Yet this third party influence, with all its unpleasant and disturbing sequels, will inevitably

be thrust upon patient and physician should some of the concurrent new schemes of medical practice ever gain acceptance.

"Carried to their full development, such plans would mean that your family doctor would be the hireling of a commercial organization or of a department of the state, the former built up necessarily by business promotional efforts, high pressure salesmanship and price competition, the latter made compulsory by legal enactment.

"Experience has already shown that contract or insurance schemes would not be successful if they observed carefully the principles of conduct and fair competition which operate as definitely for the public good as for professional honor. In these principles financial gain is subordinated to the prime object of service to the patient and to humanity.

"Furthermore, the history of some of these ventures reveals highly deplorable tendencies. "Scare head" advertising has appeared as a means of frightening people into subscribing for memberships. Medical service has been promised at ridiculously low and actually impossible rates. The services of hundreds of physicians have been promised to subscribing members, whereas actually but a small fraction of that number were "signed up" and available. Patients have found that they must be served by the physician assigned to them, not by the man of their choice. And the poorer classes have paid the same price for medical service as the very wealthy.

"No, the fine, sympathetic, humanitarian service at present rendered by the family physician can never be satisfactorily replaced by a commercial organization that retails medical service for a profit, nor by the state with a mechanized or regimental medical profession. The interjection of such agencies between patient and physician is unnecessary and cannot fail to be disturbing to all parties."—From Mead Johnson & company's Announcement in *Hygea*, September, 1934.

#### APPENDICITIS DEATHS

In this issue will be found a paper<sup>1</sup> by one of our members dealing with an analysis of statistics of deaths from appendectomies. The interesting and startling conclusion is that the death rate has not decreased in recent times, as should be expected from the improvements in surgical technique. It is explained and demonstrated by his statistics that operations so often are not done soon after the onset of the attacks. Dr. J. H. Blackburn says that there has been a definite increase in the total number of cases of acute appendicitis as well as a relative increase in incidence in recent years. He found that the operative risk is less the first day than of any other period. In his conclusions the charge is made that the nearly universal use of laxatives in abdominal conditions contributes much to the fatalities from appendicitis; and that the public should be educated away from the laxative habit even though much educational work, time and patience on the part of the profession will be required to do it.

1. *Southwestern Medicine*, 28:141-144, Feb. 1935.
2. *So. Med. Jour.*, Feb., 1935.

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# Southwestern Medicine

Printed by THE A. C. TAYLOR PRINTING CO., Phoenix, Arizona  
Published monthly for the Board of Managers of the four constituent societies.

Vol. XIX

FEBRUARY, 1935

No. 2

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## A PROPOSED HEALTH INSURANCE LAW

The medical profession will have forced upon it sooner or later radical changes, unless it is thoroughly aroused to the threatening programs. The changes may entail serious disadvantages both to the public and to the profession; if we keep ourselves informed and cooperative with our organizations and do what we can to guide the changes, the practice of medicine may be made more satisfactory than it is at present.

The American Association for Social Service has prepared a tentative draft of a model State Health Insurance bill, the passage of which by State Legislatures will certainly be attempted.

You may well ask who is the American Association for Social Security. The officers are as follows: Miss Jane Addams, Bishop Francis J. McConnell, Mr. Alfred I. Dupont, Mr. Glenn Frank, Mr. John A. Lapp, Mr. I. M. Rubinow, and Mr. Herbert S. Bigelow; Mr. Abraham Epstein, New York City, is Executive Secretary.

The proposed law covers 30 pages going into great detail. It is to be known as the Health Insurance Law. We shall quote from two paragraphs: Sec. 4, Art. 5: "Extent of Medical Benefits. The medical benefits shall consist of (a) the services of a general medical practitioner at his office, hospital or elsewhere in preventive, diagnostic and therapeutic treatment and care; (b) on the prescription of the general medical practitioner, general and special hospital treatment and care which shall include nursing and the other usual hospital services; (c) pre-natal and maternity treatment and care at home or in a hospital; (d) on

the prescription of the general medical practitioner, the services of a surgeon, diagnostician, medical or other specialist at his office, hospital or elsewhere; (e) on the prescription of the general medical practitioner, the services of laboratories and clinics; (f) the services of a general dental practitioner in xodontia, amalgam fillings and prophylactic treatment care.

Sec. 6, Art. 4: "(d) The determination as to the kind of voluntary additional medical benefits to be furnished and as to the persons to whom and the areas in which they are to be furnished, the groups and classifications established, the designations made, and rating system and the rates of premiums to be paid and all of the rules controlling the execution of the provisions of this section may from time to time (subject to the conditions and limitations imposed by this section) be reconsidered and altered in any particular by the commission."

The administration of the law would be in the hands of a physician but over him would be a commission of which the physician members would be a small minority.

It is the extremest folly to hold that a person of the character of Miss Jane Addams has anything but the highest motive in promoting this program. It is probable also the same is true for other interested persons.

Such facts should at least make us serious minded over their proposals. Should we, so far as it is possible, be in the midst of every move which concerns us or shall we take a "standoffish" policy? It seems to us that we should be wide awake and, if possible, be ahead of the band wagon.

Unless the board of managers has serious objection, we shall be glad to publish short



letters from our members on the subject of state medicine and medical economics.

### The Federal Medical Program

Secretary of Labor, Francis Perkins, has appointed a medical advisory board to the committee on economic security which was recently organized. It will be the duty of this advisory board to assist in the study of economic problems arising from illness, in families of the low income group, a study of which is to be undertaken by the major committee.

The medical group is as follows: Dr. Walter L. Bierring, President American Medical Association, Des Moines; Dr. Harvey Cushing, professor of neurology at Yale; Dr. Stuart R. Roberts, professor of clinical medicine at Emory University; Dr. George Crile, Cleveland Clinic Hospital; Dr. Thomas Parran, Jr., New York State Commissioner of Health; Dr. James Alexander Miller, professor of clinical medicine, College of Physicians and Surgeons, New York; Dr. Robert B. Greenough, president American College of Surgeons, Boston; Dr. George M. Piersol, past president, American College of Physicians, Philadelphia; and Dr. J. Sheldon Horsley, of Richmond, Virginia.

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### JOHN KELLY MOEUR, M. D.

Death has taken from the ranks of Arizona's medical profession one of its reputable and highly respected members—Dr. John Kelly Moeur of Tempe, son of Dr. and Mrs. Benjamin B. Moeur.

Dr. John, the name by which he was best known in the profession and by his vast score of friends, passed away on the evening of November 30, following a lingering illness. Burial was in the Double Butte cemetery in Tempe on December 3, 1934.

He was born in Tempe, June 8, 1897, the eldest son of Dr. and Mrs. Benjamin Moeur. Through his life he followed in the professional footsteps of his father. When the senior Dr. Ben was elected governor of Arizona, Dr. John carried on the professional activities of the family, the fourth physician of the Moeur family in a direct line starting with Governor Moeur's grandfather.

He was married December 8, 1921, to Miss Mary Carter of Vienna, Illinois. To the union was born one child, John Carter Moeur.

After attending the University of Arizona in

1916 and 1917, he went to the University of Illinois, from which institution he was graduated in 1922. At the University of Arizona he was a member of the Sigma Alpha Epsilon fraternity.

Highly respected by all who knew him, Dr. John's brave and ever cheerful battle against ill health which overtook him during the last years of his young and promising life, while at the same time seeking, when physically able, to bring health to others through his profession, won him widespread admiration throughout the Salt River Valley and even the entire state.

Perhaps no greater tribute can be paid to Dr. John than that given by John J. Phillips, a member of the Arizona legislature, at the time the young physician died. The legislator, in a poem pictured Dr. John as "unselfish, unassuming and with no thought of personal gain."

"If the record of such living

Can be proved by wreaths and flowers,

Today we lost a hero,

All his life a friend of ours."

He is survived by his widow, son, father, mother, brother, Benjamin B. Moeur, Jr., and two sisters, Mrs. Vyvyan Parmelee, Salt Lake City, and Mrs. Jessie Bell Hamilton, Los Angeles.

G. C. T.

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### NEWS ITEMS

At the meeting of the Kansas Club of Prescott, Dr. Clarence E. Yount sang a solo.

Dr. Nelson D. Brayton is district governor of the Arizona Lions Club and has been taking prominent parts on programs in the various Lions clubs of the state during the past several months.

Dr. A. H. Schermann of Flagstaff is the county health officer of that county.

Dr. A. J. McIntyre of Phoenix served as chairman of the president's birthday ball of Phoenix.

Dr. L. P. Lufty of Jerome has been appointed surgeon-in-chief of the United Verde Extension Mining Company.

Dr. Rembert H. Thigpen of Jerome has been incapacitated for several months because of a broken leg. He has recently resigned his position as surgeon-in-chief of the United Verde Extension Mining Company.

Dr. George R. Robinson, Yuma, and Dr. John Hagen, Inspiration, were visitors in Phoenix recently.

Dr. C. A. Donaldson, Mesa, addressed the parent-teacher association of the Franklin school on a topic concerning alcohol and narcotics.

Dr. Harry R. Carson, who has been ill for several months, is on the mend and it is expected that he will soon be able to get to his office.

### A CORRECTION

In last month's issue one line of Dr. Redford A. Wilson's paper was omitted. The paragraph was on morphine sensitization: This paragraph is being reprinted:

The bronchial reaction to any substance to which the patient is sensitive, is familiar to everyone. The wheal appearing at the site of injection of morphine resembles in every respect a positive skin reaction to an antigen to which the patient is specifically sensitive. There is proof that some people are as sensitive to morphine as they are to any other antigen. If the patient with status asthmaticus should be sensitive to the opiate, the administration of morphine will naturally aggravate the condition it is given to relieve.

### ATTENTION, READERS:

Existence of a journal depends to a large extent on revenue from advertisements. Continuance of advertisers depends on their patronage. Therefore, patronize those appearing in this journal. Detach and mail coupons attached to advertisements. Thus you may receive something for nothing. Readers are requested to observe these suggestions.

Application blanks are now available for space in the Scientific Exhibit at the Atlantic City Session of the American Medical Association, June 10-14, 1935. The Committee on Scientific Exhibit requires that all applicants fill out the regular application form and requests that this be done as early as convenient. Applications close February 25, 1935.

Persons desiring application blanks should address a request to the Director, Scientific Exhibit, American Medical Association, 535 North Dearborn Street, Chicago, Illinois.

### LETTER COLUMN

"Dear Editor:—Don't forget to call on Warner now and then, because he had been editor so long he was gettin' good. It's a peculiar thing to me, but

it's a fact, every one of our free clinics simply rejoice around about sun down when they have had a lot of patients, had a big day; they just 'gloat' over the day's record. They deal in numbers. I think when we all get to advertising (like I hear we're going to), why, these clinics of ours will have theirs, too. Tom Imler is making some hollow glass tubes filled with light, and he can twist 'em so they will spell 'Free Clinic.' . . . based on the present trend of world-wide happenings, within ten years from now Medicine in the United States will be under DICTATOR-SHIP. . . . Of course, we do not expect you, through the power of your pen, to push or press us into the presence of a 'Medical millenium,' (it's not coming), but as one who hears subdued guttural sounds daily coming from dissatisfied medical men, desirous of forming groups of 'Fundamental Medical Workers' in our midst, and who are furnishing the 'fingers that are writing upon the wall,' I earnestly and sincerely solicit your deep meditation in the behalf of us all, asking of you to tell us—'Why I am not, or am, satisfied with the present regime of medicine as is practiced in this county.' Secondly—'Why I think we should, or shouldn't lock the keys, wires and roads to and from 535 N. Dearborn St., Chicago, in dealing with our local medical questions.'

HARLEY YANDELL, M. D.

Short excerpts from a letter from Dr. H. Yandell appear in this issue in a column which we designate "Letter Column." While the Doctor's remarks are written in facetious style, they contain much matter for thought. His last line prompts the suggestion that organized medicine must become more closely knit than in the past even, if we are to yield influence in the coming transformation of our system of practice. It is letters along this line, however, to which the letter column is open. We regret that this, the first letter, was too long for our limited space.

### ARIZONA MEETING

The 1935 meeting of the Arizona State Medical Association is announced for April 25, 26, 27. The meeting place is Phoenix. An excellent program is being prepared and will be announced next month in the journal. The program committee is: President-elect, C. R. K. Swetman, Dr. D. F. Harbridge, and Dr. F. J. Malloy. Two afternoon meetings will be given over, one to economic conditions of the profession, and the other to industrial work. Most of the program will be given by our own men, but there are several outstanding guest speakers.

### TROTZKY

Word has reached us that Trotzky pled guilty and received a six-months suspended sentence from Judge Hardy of Nogales, with the warning that if he engaged further in the practice of medicine in Arizona without a license he would go to jail for six months.

This forcibly calls attention to the weakness of our medical practice act. It should have "teeth" put into it, and perhaps our legislative committee can see that something is done in this connection.

If Trotzky can be believed, he has left for California.

### DEATH OF DR. MILLIGAN

Just as we were going to press we received word from Dr. L. B. Cohenour, Secretary of the New Mexico Medical Society and Associate Editor of Southwestern Medicine, that Dr. C. F. Milligan, President of the New Mexico Medical Society, died suddenly on February second. More detail will be given at a later date.



## MOTION PICTURE PROGRAMS

Davis and Geck, Inc., have a number of motion pictures of surgical operations which they are glad to supply, free of charge, to various organizations who will be careful of the films and guarantee their safe return.

## DALLAS CLINICAL CONFERENCE

The Dallas Southern Clinical Society holds its Seventh Annual Clinical Conference this year at the Baker Hotel, March 18th-22nd. Fourteen excellent guest speakers will cover various specialties in medicine.

## NEW MEXICO MEETING

The New Mexico State Medical Society will hold the annual meeting May 22, 23 and 24th.

The American Neisserian Medical Society was founded on June 12th, 1934. It is dedicated to the promotion of knowledge in all that relates to the gonococcus and gonococcal infections, that there may be attained improvement in the management of gonorrhea and a reduction in its prevalence. There are 115 charter members and the officers are:

Dr. Edward L. Keyes, New York, Honorary President; Dr. J. Dellinger Barney, Boston, President; Dr. P. S. Pelouze, Philadelphia, Vice-President; Dr. A. L. Clark, Oklahoma City; Dr. Walter Clarke, New York; Dr. R. D. Herrold, Chicago; Dr. N. A. Nelson, Boston; Dr. Oscar F. Cox, Jr., Boston, Secretary-Treasurer.—Executive Committee.

The society plans to carry out the following program: The scrutiny of the management of gonorrhea in both male and female; clinical and laboratory research in the diagnosis, medical and social pathology, and the treatment of gonorrhea; dissemination among the medical profession and the public of authoritative information concerning gonorrhea.

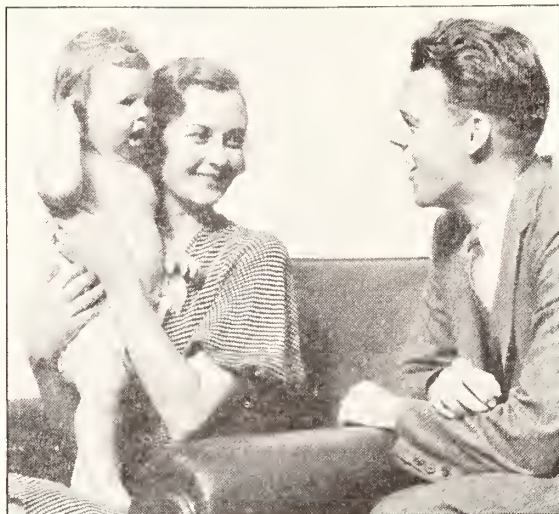
Membership is limited to: Residents of the United States or its territories, Canada or Mexico; graduates of a medical school recognized by the American Medical Association; those who are engaged in some phase of the management of gonorrhea.

Invitation to membership is extended to all qualified physicians who desire to work for improvement in the management of gonorrhea. Application blanks can be obtained from Oscar F. Cox, Jr., M. D., Secretary, 475 Commonwealth Ave., Boston, Mass.

A food product is available containing sufficient vitamin D so that it is unnecessary to go to the expense of buying vitamin D preparations to supplement the diet. For, according to clinical tests, Cocomalt, when taken three times a day, will supply children with enough vitamin D. Cocomalt contains not less than 30 Steenbock (81 U.S.P. revised) units per ounce—the amount used to make one drink. Cocomalt is licensed by the Wisconsin University Alumni Research Foundation. Ordinarily vitamin D preparations are unpalatable, but in this form its existence is unsuspected.

In addition to its importance as a vitamin D supplement to the diet, Cocomalt is helpful where milk is a problem. For Cocomalt, which is designed to be mixed with milk, is truly delicious. But a word of warning must be sounded concerning products that appear to be similar to Cocomalt. For the most part these preparations are mere flavorings—a mixture of chocolate and sugar. Cocomalt, however, is a product designed as a food with vitamin content. Its tempting chocolate flavor—important as it may be in making milk more palatable—is secondary to its importance as a body-building food with vitamins.

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tion of all the accepted vitamins has been prepared by R. B. Davis Company, the makers of Cocomalt. It may be secured on request without cost by writing the company at Hoboken, New Jersey, Dept. 000.

### BOOK REVIEW

**THE HEART VISIBLE, A CLINICAL STUDY IN CARDIOVASCULAR ROENTGENOLOGY IN HEALTH AND DISEASE;** by J. Polevski, M. D. attending Physician and Cardiologist, Newark Beth Israel Hospital. F. A. Davis Company, Publishers; Philadelphia; 1934; \$5.00 net.

This is a clinical study of the normal and pathologic heart as shown on the fluoroscopic screen and by Roentgenograms. It is insufficient that the heart be viewed from a single angle; a complete survey should be made observing the surface contour from every angle so that any change in size or shape of any of the chambers can be visualized. This can be accomplished best by a series of roentgenograms and by careful use of the fluoroscope.

The findings on examination of the normal heart are first given, followed by description and illustrations of changes occurring in the "abnormal" heart. The chapters on the pericardium and great vessels are of much interest. The volume is profusely illustrated; the reproductions of roentgenograms are unusually clear; the text is concise and well arranged.

H. P. M.

**INFRA-RED THERAPY.** — The Council on Physical Therapy reports that the generators of infra-red or thermal radiation usually consist of a concave reflector at the focus of which is a heating element. From the sources considered (electrical bulbs and resistance coils), the penetration of heat into the tissues is never great under therapeutic conditions. Therapeutic indications for the use of heat locally are chiefly in the following fields: surgery, following fractures, dislocations, sprains, cicatrices after operating procedures, arthritis when a limited influence on the joints is desired, myositis, neuritis, and circulatory disturbances of the extremities, neuralgia, chronic diseases of the nervous system, traumatic synovitis and tenosynovitis, contusions and muscle sprains, bursitis, stiff joints, chronic backache. The report of the Council on Physical Therapy contains a discussion of the treatment of these various conditions. (Jour. A.M.A., July 7, 1934, p. 27).

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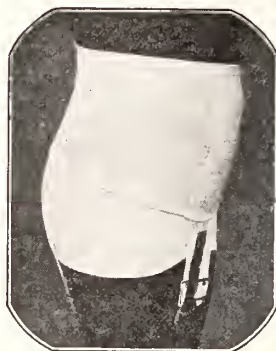
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rehabilitation of the disabled; one was psychosocial, and the other economical, prejudice. The prejudice rests on superstition and false concepts of the capacity of the crippled to perform work. Society is gradually losing these restrictions through legislation; the difference between the normal and the disabled seems to be lessening.

Those who have to do with the problems of the disabled, especially, will appreciate this volume.

It contains 265 pages of text with three appendices: No. I gives the Compensation Provisions for second major injuries in those states not having second-injury funds. Appendix II presents the summary of vocational rehabilitation legislation by states. Appendix III gives the legislation for the blind in the various states. There are 18 pages of bibliography. The index seem to be adequate. The publishers have done an excellent piece of work as well as has the author.

**THE 1934 YEAR BOOK OF GENERAL MEDICINE**; by George F. Dick, M.D., Lawrason Brown, M.D., George R. Minot, M.D., S. D., F. R. S. P. (Hon.) Edin., William B. Castle, M.D., A.M., William D. Stroud, M.D., George B. Eusterman, M.D.; first edition; 843 pages; The Year Book Publishers, Inc.; 304 South Dearborn Street, Chicago, Ill.

One who has not made use of the Year Book can not appreciate what a handy volume it is. This year's book on general medicine is no exception to the rule. If one happens to be interested in granulocytopenia, he may turn to the index and find a discussion beginning on page 406 under the name malignant neutropenia. The editors have written a short editorial upon this disease; following this comes the reviews of articles by Dr. Regena C. Beck, Thompson and Jackson, Stephens and Lawrence, Madison and Squire, etc. There are reviews of at least 13 of the more important articles of the year upon this subject. If one wishes information on infectious mononucleosis he will find it beginning on page 420. There are six pages of carefully culled information of this year's literature on this disease; or suppose one is particularly interested in electro-

cardiography; turning to page 594 he will get in the next five or six pages the important new developments in this line; it may be undulant, typhus, tularemia, rheumatism, scarlet, poliomyelitis, meningitis, malaria or other diseases which one wishes the latest information upon; it is found in this volume. The book is highly practical.

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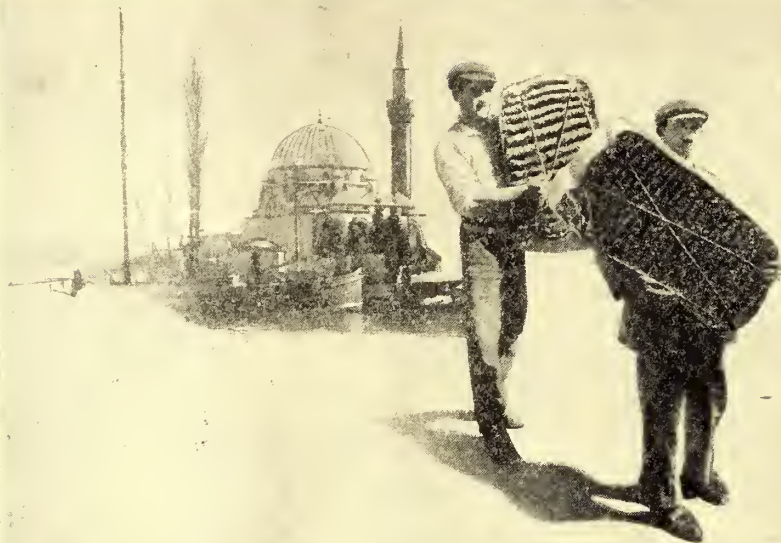
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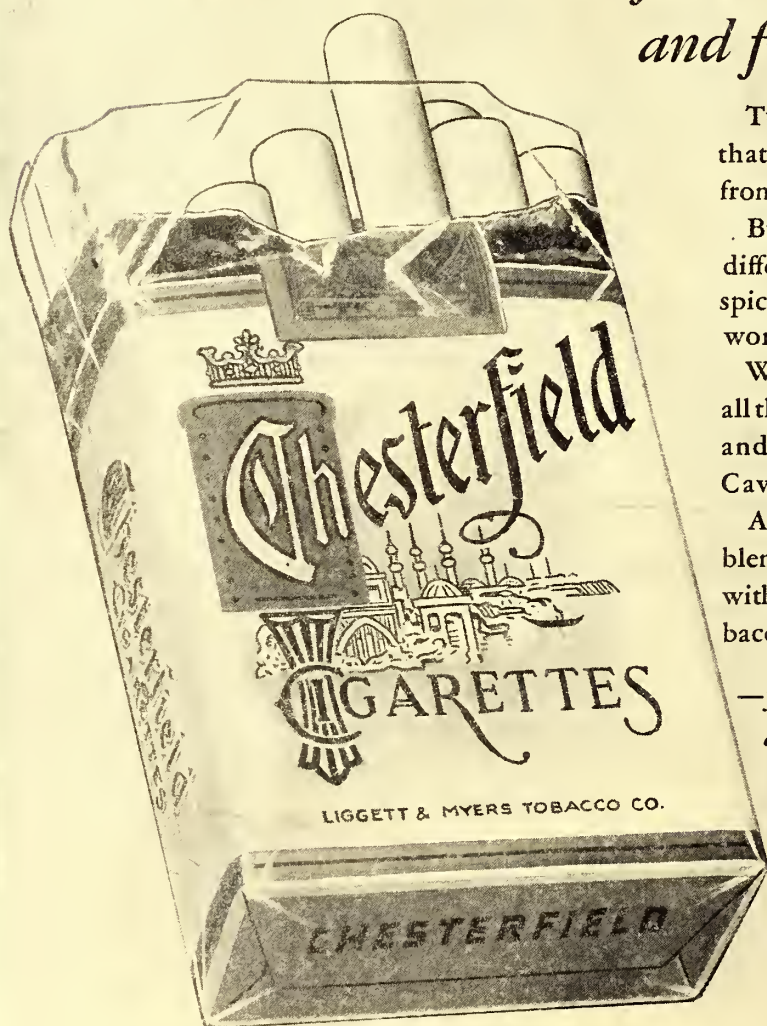
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(REGISTERED U. S. PATENT OFFICE)

Vol. XIX

MARCH, 1935

No. 3

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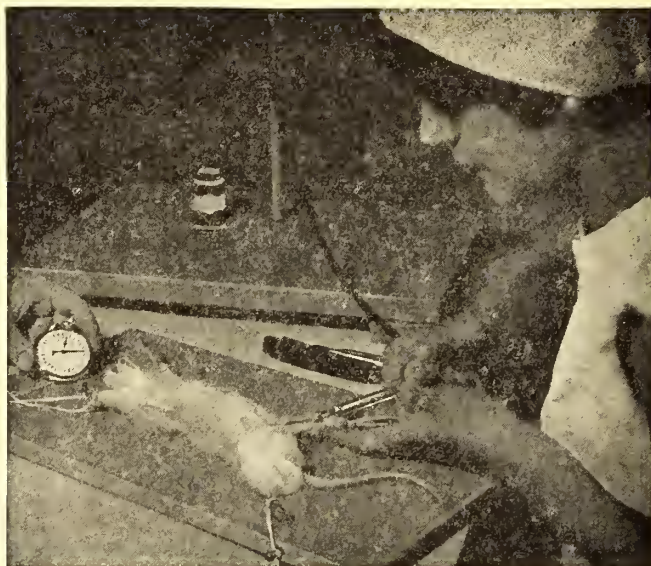
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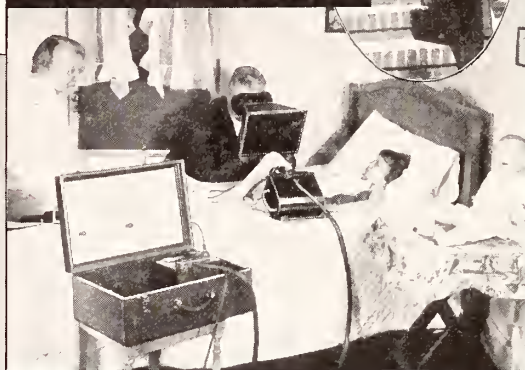
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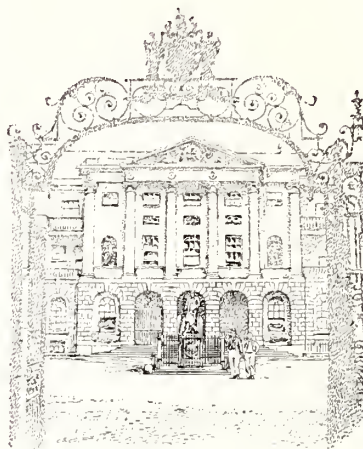


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VOL. XIX

MARCH, 1935

No. 3

ANNUAL SUBSCRIPTION \$2

SINGLE COPIES 25 CENTS

Entered at the Postoffice at Phoenix, Arizona, as second class matter.

"Acceptance for mailing at special rate of postage provided for in section 1103, Act of October 3, 1917, authorized March 1, 1921."

## TREATMENT OF GONORRHEAL INFECTIONS IN THE FEMALE

by

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(Read Before The New Mexico Medical Society at its 52 Annual Meeting, at Las Vegas, N. M., July 19-21, 1934).

Infections, in the female, caused by the **gonococcus** are no respectors of age. Few diseases are so liable to **complications**. Few diseases have such **varied manifestations** ranging from unrecognized symptoms to severe and even dangerous illnesses.

The measures used to treat gonorrheal infections are numerous; agreement between the advocates of various treatments until recently has been lacking. It is the **purpose** of this paper to **summarize** the **treatments** generally endorsed by leading gynecologists.

VAGINITIS occurs from **infancy** to **puberty**; prior to puberty the vaginal **mucosa** does **not** develop a **cornified** layer which offers resistance to invasion of the gonococcus. Infection is contracted probably most frequently without genital contact from toilets, bath tubs, towels or digital contamination. Gonorrhea is so **highly contagious** in infancy and early childhood that epidemics frequently occur in orphanages and other institutions where large numbers of female infants and young girls are closely confined.

This condition was formerly termed vulvovaginitis but the term is a misnomer as the **excoriations** so frequently seen on the **vulvae** are not **due** to invasion of the skin by the gonococcus but by the irritation of the **discharge** from the vagina. The glands of the cervical canal are very rarely involved in the infection and inflammation of the **endometrium** and

the Fallopian tube prior to puberty has been reported but a few times. There is evidence that gonorrhea in girls nearing puberty may invade the cervical glands and later the upper genital tract producing typical salpingitis.

Diagnosis of this condition is usually not difficult. In the early **acute stage** there is a profuse **purulent discharge** which is exceedingly **irritating** to the vulvae, the inguinal folds of skin, and even the perineum. Gonococci are readily identified by microscopic examination of this discharge. If examination of this exterior discharge is negative then through a small size **Kelly cystoscope**, with the child in the knee chest position, the **vagina** can be **examined** and a specimen of pus obtained from high up in the vagina. I have found this to be a most valuable procedure both for examination and **treatment**. The method is painless and has the added advantage that the child can not see what is being done.

**TREATMENT:** For many years the teaching was that gonorrheal vaginitis was a very stubborn disease with a marked tendency to become chronic and that vigorous, persistent long-continued treatment was necessary for its eradication. For this reason daily or twice daily douches with bichloride solution, permanganate of potash, applications of strong solutions of silver nitrate and other antiseptics were used. More recently the teaching has been and now is that **vaginitis** is a **self limiting** disease with practically no tendency toward chronicity and that **simplicity** and **gentleness** are the **keynotes** of its **treatment**.

Paine<sup>1</sup> treats these little patients with nothing but **soap** and **water** for **external** cleanliness and a local dusting powder of **boracic acid** to relieve the irritation. This almost nihilistic method of treatment will result in cures but the disease course can be shortened and better results obtained by the method introduced by Schrauffler and Kuhn<sup>2</sup> who use reliable, non-

irritating **antiseptics** incorporated in anhydrous **lanolin** to make a stiff paste. They use **one per cent silver nitrate** and **10 per cent argyrol** or **five per cent mercurochrome** may be used. This **antiseptic** paste is packed into an old fashioned **glass syringe** with asbestos wrapped plunger and with the child in knee chest posture the tip of the syringe is gently introduced into the vagina and the **vaginal canal** is then filled full of the ointment.

The object is to thoroughly **distend** the **vagina** so that the folds and rugae are entirely obliterated, bringing the **medication** in **contact** with the **entire vagina**. A **pad** is then **applied** and the patient goes home. **Treatments** are to be repeated **every other day**. The lanolin being miscible with water makes an ideal base.

Home treatment other than soap and water externally should not be used. The authors referred to above have used this method in over **2,000 cases** with no complications and with most **satisfactory results**. I have found this method simple, painless and most effective.

Brown and Lewis have tried treatment of gonorrheal vaginitis in children with daily **injections** sub-cutaneously of 50-150 units of **theelin**. The treatment is based on the observation that when theelin is administered to **immature** female monkeys the vaginal **mucosa** quickly takes on **adult characteristics**. In vaginitis they found the same changes and disappearance of the discharge and organisms.

**ENDO-CERVICITIS:** After puberty the **gonococci** do not attack the vaginal mucosa but the complex mucous glands of the **endocervix**. These glands pour out purulent material in the more acute stages and in the chronic stages mucus with leucocytes. **Diagnosis** of gonorrheal endocervicitis may be easy or difficult according to the stage of infection. The correct **technique** is to thoroughly **wipe** all **pus** and **mucus** from the vagina; then pass an **applicator** with a small amount of wrapped cotton into the cervical canal and thoroughly rub it on the walls. The **gonococcus** may be obtained in almost **pure culture**. **Differential** diagnosis must be made between **gonorrheal** infection and **trichomonas** vaginitis. A platinum loop full of vaginal secretion, or pus from a swab, should be mixed with normal saline and examined fresh; trichomonas, if present will be seen as **motile flagellates** under the

high power dry lens of the microscope. **Trichomonas** infection is very **prevalent** in the Southwest.

As soon as the diagnosis of gonorrheal cervicitis is made, treatment should be instituted. **Douches** as ordinarily advised are **useless, except** to remove secretions and to **apply heat**. No douche can reach the source of infection in the cervical glands, but a gallon of water at 120° will produce an active **hyperaemia** of the cervix and will have beneficial action.

Brady introduced the method of applying 20 per cent **mercurochrome** solution on applicators into the **cervical canal** and the introduction of a five per cent mercurochrome **tampon** in the **vagina**. The writer has been using a **narrow strip** of **gauze** soaked with 20 per cent **mercurochrome** packed tightly into the cervical canal and a five per cent mercurochrome **tampon** in the **vagina**. Both tampons provided with threads for easy removal are left in place for **24 hours**. They are then removed by the patient and a hot douche taken. The tampon treatment is repeated every **second day**. This method is rational in that there is a continued application of the antiseptic and the packing by dilating the openings of the cervical glands allows drainage and allows the antiseptic to penetrate to the base of the glands. That this penetrating action actually occurs is shown by the fact that the **mucus** secreted by the cervical glands is still **red 48 hours** after the tampon has been removed. This treatment should be kept up for **three to four weeks** except at menstrual periods. Examination of specimens from the cervix should be taken after the second week of treatment. It is **unusual** to **find gonococci** after the third treatment but unsafe to pronounce a cure. After three weeks a rest of a week is allowed with examination again at the end of that time. **Examination** right after **menstruation** will usually show gonococci if they are still present. Three negative slides including one after menstruation probably mean a cure but further examinations should be made. If slides are negative after two successive menstrual periods the case may be dismissed.

**Chronic gonorrheal cervicitis** usually **requires** similar treatment and also the **cautery**. A fine cautery is inserted into the cervical canal up to the level of the internal os and



**four stripes are burned.** The burned stripes should be deep enough to reach and **destroy** the **deeper** portions of the gland **tubules.** The **canal** then, should be **packed as outlined above.** These cauterized areas destroy part of the gland bearing tissue and between the cautery lines the other glands are opened up so that antiseptics may penetrate and destroy the organisms. It may be necessary in a week or two to use the cautery **again burning** the areas between those previously treated. The diathermy loop with cutting current can be used in place of the cautery with excellent results.

Medical **diathermy** has been **disappointing** as a treatment of endocervicitis.

Another method recommended for chronic cervicitis is the **injection** at **several points** into the cervical tissues of two per cent **mercurochrome** solution, injecting the solution as close as possible to the base of the cervical glands.

**URETHRITIS:** Urethral irritation in my experience has **not** been a **frequent** complication of acute gonorrhea. When it does occur instillation of two cc. five per cent **mercurochrome** into the **urethra** usually suffices to give relief. Infection in **Skene's tubules** may be treated by **injection** directly into the tubules through a blunt needle or by use of a **fine cautery.**

**Cystitis** occurs frequently and is **treated** by **argyrol** 10 per cent in the bladder and by bland **urinary antiseptics.** **Pyridium** seems to be effective for gonorrheal cystitis and is non-irritating. After the acute stage **urotropin** and **ammonium chloride** are more effective.

**Abscesses of Bartholin glands** should be opened and **drained** or the gland should be **excised.**

Gonorrheal **salpingitis** is in the beginning an acute inflammation of the mucosa lining—the Fallopian tubes and is always **preceded** by an acute **endometritis** from which the inflammation extends to the tubes. The endometritis is transitory and usually brief in duration and may cause no symptoms of itself.

Salpingitis is an extremely **variable** disease, being in many instances so **mild** as to be unrecognized by the patient or causing **extreme** pain and disability. The **danger to life** has been greatly **exaggerated.**

Dr. Hunner last summer in a personal conversation said that he had never known of a case of salpingitis dying if left alone, but he

had known **many** to die following operative attempts at saving the patient's life.

It is a constant surprise to examine patients and find **indurated tubes,** to take Salpingograms and find the tubes closed and to be unable to elicit history of any pelvic inflammatory disease—no attacks of pain in the pelvis, **no fever nor any other symptoms** to account for the pathology found.

In order to undertake treatment of salpingitis in a rational manner a thorough understanding of the **essential pathology** is necessary. As the inflammatory process extends from the endometrium to the tubes the mucosa of the **tubes** becomes **edematous** and the wall of the tube becomes congested and filled with leucocytes. The abundant **purulent exudate** in the lumen of the tube can **drain** through the **uterine cavity** and **cervix** and **vagina,** or through the fimbriated end of the tube **into** the **peritoneal cavity.** There is undoubtedly drainage into the peritoneal cavity in all cases of acute salpingitis; and the **severity** of the **symptoms varies** with the **volume** and **duration** of this **contamination.** Fortunately, there is an immediate **tendency** on the part of the **fimbriae** of the tube to **agglutinate** to each other sealing the end so that peritoneal spill may be early limited. This sealing is at first due to a fibrinous exudate which in time becomes fibrous; the **tube** then is **permanently closed** and **sterility results.** Due to the exudate into the peritoneum and to the inflammation of the peritoneal covering of the tube analogous **pelvic adhesions** occur, involving the **tube** and **ovary,** **omentum,** intestines and posterior surface of the uterus. These **adhesions** are adequate to **limit** the spread of **infection.** The **gonococcus** does **not thrive** in the **peritoneal cavity** as may other organisms. Even when there is a considerable collection of pus in the pelvis or when there is an abscess of the tube and ovary **spontaneous rupture** does **not occur** though these abscesses readily rupture at operation. The **gonococcus** does **not live** long in the peritoneal cavity nor even in **tubo-ovarian abscesses** and the **resolution** of the inflammatory process **begins** by absorption of the exudates and resolution or organization of the fibrinous adhesions. The pathological picture which we call chronic salpingitis is not the picture of a chronic inflammatory process but consists of

the after effects and the attempt on the part of nature to repair the damage done by the acute infection. The fimbriae of the tube are closed, the **tunica of the ovary is thickened**,



Fig. 1, Case 1. Severe salpingitis and cystitis, both of gonorrheal origin. Patient has cyst of left ovary about three cm. in diameter. No pain or other symptoms. X-ray immediately after injection of iodochloral.



Fig. 2, Case 1. Twenty-four hours after injection; no free iodochloral in peritoneal cavity.

the ovary is studded with follicle **cysts**, and numerous fibrous adhesions exist. Not always does this typical picture obtain. The **process** frequently completely resolves and the **organs** are **restored to normal function**. Thus Hub-scher<sup>8</sup> found that after conservative treatment of salpingitis **25.6 per cent** of patients **conceived** and bore children, showing restoration of normal function.

The symptoms and **physical findings of acute salpingitis** are so **characteristic** that diagnosis should be simple and sure. The **onset is sudden** with **pain** in the pelvic region and lower abdomen, **fever** is usually high, ranging up to

104°. There is frequently abdominal **distention**. On examination we find exquisite **tenderness** to pressure over the pelvic organs usually in both sides and bimanual examination reveals tenderness and usually either masses or **indurations** in the region of the tubes and ovaries. The slightest movement of the cervix or uterus causes severe pain. There is usually present a **purulent discharge** in which **gonococci** are found. Leucocytosis is present; may reach **18,000 to 25,000**; **polymorphonuclears** predominate. With careful history and physical examination there should be very little difficulty in differentiating be-



Fig. 3, Case 2. Moderately severe salpingitis. Pelvis clear, no masses are palpable and patient has no symptoms. X-ray immediately after injection.



Fig. 4, Case 2. Eight hours after injection. Free iodochloral in peritoneal cavity. Right tube patent.



tween salpingitis and other acute intra-abdominal inflammatory diseases.

One special type of acute salpingitis deserves mention and that is the type in which the **inflammatory process** becomes acute (either a first infection or an acute recurrence) **after childbirth**. The special characteristic of acute salpingitis after parturition is an appearance



Fig. 5. Case 3.—Moderately severe salpingitis post-partum type. Pelvis is now clear, no masses, no tenderness and no symptoms. X-ray immediately after injection of iodochloral.

usually within 24 hours after delivery. A sudden rise in **temperature** to  $102^{\circ}$  to  $104^{\circ}$  within that time after normal delivery worries the obstetrician; the condition is due to the rapid invasion of **gonococci** from the **cervix** across the **endometrium** to the **tubes**. A typical course of acute salpingitis results; **masses** develop beside the uterus; **resolution** eventually takes place. This type of salpingitis is probably the most common cause of "**one-child sterility**."

#### TREATMENT OF ACUTE SALPINGITIS:

There are two methods used in treating acute salpingitis—the **radical** and the **conservative**. Those who advocate the radical method are mostly general **surgeons** who **compare** acute **salpingitis** with acute **appendicitis** and argue that if early operation is indicated in **appendicitis**, it is also indicated in **salpingitis**.

The comparison is **inaccurate** for a number of reasons, chief among which are the following: **Unoperated appendicitis** is **frequently fatal**, whereas **salpingitis** per se and **unoperated** is **rarely** if ever **fatal**; the **appendix** is directly connected with the colon which **contains** a va-

riety of **micro-organisms** which can gain access to the **peritoneum** through a ruptured appendix; the infective agent in acute **salpingitis** is limited to the **gonococcus** and there is **not** a constant source of **added infection**; the **appendix** is a **useless organ** while the **tubes** have a **definite function**; **operations** done during the **acute stage** of salpingitis must be **radical**; **both tubes** usually have to be **removed** and frequently the **ovaries** as well; operations performed in the acute stage are almost certain to result in **numerous peritoneal adhesions** because the pelvic peritoneum is in a stage of active inflammation and is usually covered with a fibrinous exudate; operative **wounds** made during the acute stage must be **drained** with more tendency to adhesions and **prolonged convalescence**; acute **salpingitis** is virtually a **self limiting disease** with the tendency toward recovery and restoration of normal function.

Most gynecologists are in agreement that acute salpingitis should be treated by conservative measures and that **operation** should be



Fig. 6, Case 3. X-ray eight hours after injection—tubes are patent.

reserved for complications that will not yield to conservative treatment.

**Conservative treatment** consists of **rest** in bed, in **Fowler's position**; nourishment should be **light** and **fluids** of all kinds **urged**; there seems to be a general impression that ice bags should be placed on the abdomen but in my experience **heat** has been more agreeable to the patient and more **beneficial**. It is also

more logical as the **thermal death point** of the **gonococcus** is from **103°-107°**. It also lessens pain. Recently the **heating cabinet** the same as that used for hyperpyrexia treatment of general paresis has been used with **excellent** results in acute salpingitis.

Not having access to this expensive piece of apparatus, the writer uses a **light cradle** with **four to six light bulbs** at a distance of about **18 inches** above the patient's **abdomen**. Heat is applied **two hours** of each **three**. **Ice bags** to the patient's **head** and **cold drinks** keep her comfortable. It is usually noticed that the patients **complain** of the **heat** at the **first treatment** or two, but after that the relief of pain is so noticeable that they ask to **have the light** on. An electric heating pad or hot water bottles will serve but are not generally as agreeable to the patient as the light cradle treatment. **Hot douches** of a **gallon** of solution at **110° to 120°** twice daily are both agreeable to the patient and useful in promoting pelvic hyperaemia.

Non-specific **protein therapy** is now a **recognized** part of treatment of all cases of gonorrheal salpingitis. Of all the preparations that have been used ordinary sterile **cow's milk** is by far the most **efficacious**. Milk therapy was introduced by Robert Schmidt of Prague in 1916 and one of the most ardent advocates has been Gelhorn of St. Louis.

Milk therapy should be begun in all cases of salpingitis as soon as the diagnosis is made. Milk is also of value in cases of long standing but is more efficient if **begun early**. The method is simple. About **15 cc.** of skimmed **milk** are placed in a test tube and **boiled** in a cup of water for **20 minutes**—for the first injection **7.5 cc.** are **injected** into the **gluteal muscles**. The injection must be made **high** in the **hip** above the line from the trochanter to the posterior superior spine of the ilium. If the injection is made **into** the **subcutaneous fat** a sterile **abscess** will form. This **first injection** usually causes a sharp rise of **temperature** even up to **105°** but this should cause no alarm.

Injection of **10 cc.** of milk should be **repeated** in three days and 10 cc. at intervals of **three to four days** until marked improvement is sure. Usually five or six injections have proved sufficient.

One of the outstanding effects of milk injection is the **rapid subsidence** of **pain**. Most often a patient who winces at the mere approach of the examiners hand to her abdomen before injection can bear considerable pressure on the lower abdomen within 24 hours following the first treatment. After the sharp rise in temperature following treatment the **fever** rapidly **subsides**. Following **each** succeeding **injection** of milk the reaction both local and general is **less severe** and of shorter duration. The general condition of the **patient improves** rapidly and one can expect a shorter period of illness than would follow a surgical operation.

Excellent reports are appearing in the literature in regard to the results obtained with the **Elliott method** of treating salpingitis by means of heat applied to the pelvic organs by **circulating hot water** at a determined temperature and pressure through a special **applicator** inserted **into** the **vagina**. The special machine used is expensive and the cost of treatment to the patient is high, and hence not used by the writer; and, too, results have been obtained by the method outlined.

**Fifteen** consecutive **cases** are **presented** in which the principal therapeutic **measure used** was the **injection** of **milk**. All 15 cases ranged from the moderately severe to the severe type of cases. In eight of the 15 cases positive slides were obtained and the remaining seven were typical as to history and physical findings. **Four** of these cases were **post-partum infections** and were severe; positive slides were obtained in two of these four cases. Operations were performed in four of the 15 cases, though one operation was not performed for salpingitis but for a dermoid cyst of the ovary about a year after the salpingitis. This makes **20 per cent** of operations performed for cure of infection. A striking observation in these operative cases was the **absence** of **adhesions**. **Tubo-ovarian abscesses** were present in the **three** cases operated upon for unresolved pelvic masses and these were almost entirely **free of adhesions** and **no** troublesome **bleeding** accompanied their removal.

**Two** of the women treated have **since conceived**, one delivering at full term and the other resulting in abortion at three months. Hystero-salpingograms of three patients show **patent tubes** in **two** and closed in one. Twelve of



the 15 patients are still entirely free of symptoms that might be due to their salpingitis. The period of **convalescence** is on the average **shorter** following **conservative treatment** than following **operation**. The average time in bed following operation is three weeks, while with conservative therapy and milk injections the average patient is up and about in two weeks.

What then is the place of surgery in the treatment of salpingitis? In brief, I would state that **surgery** has **no place** whatever in the **treatment** of **salpingitis**. Surgery should be **limited to the** treatment of certain **after effects** of salpingitis which in a small percentage of cases will not resolve under conservative treatment. These **after effects** are **painful adhesions**, which will be rare if proper treatment is instituted early, **ovarian abscesses** which are resistant to conservative treatment probably because of poor circulation in the abscess wall, and **plastic operations** on the tubes to give patients with closed tubes a chance at motherhood.

#### SUMMARY

An outline of treatment has been presented concerning the various manifestations of gonorrhea in the female. Methods advised are simple and can be carried out in any office, home or hospital. The utmost of conservatism in the treatment of salpingitis is urged on the medical profession.

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## OUTBREAK OF FOOD POISONING AT THE UNIVERSITY OF ARIZONA

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The purpose: To show the necessity of adequate supervision of handlers of food. Jordan, Meyer, Geiger, and others, have reported many food-poisoning outbreaks. They have covered the field adequately; no attempt will

be made merely to report another outbreak.

It is the practice of the Arizona State Laboratory to cooperate with the University of Arizona medical staff. We examine stool and urine specimens, gum smears, and throat cultures of food handlers employed at the University Commons and at the various houses maintained by organizations associated with the University. Examinations are made once in the college year. There is no sanitary supervision of sorority and fraternity houses. Illnesses occurring in the houses are presumably reported to the University authorities. Medical service at the infirmary is available for students, without charge.

The "X" sorority is housed in an old building located near the University campus. The personnel of the house includes 12 girls, a house mother, a cook, and a house boy. Four of the 12 girls have their homes in town and have only occasional meals at the sorority house. On the evening of May 10th, a rush party was held at the house for two rushees, Q and R. Three hours after the meal, four girls (A, B, C, and D) became sick and vomited. The following morning, three more girls (E, F, and G) were ill. In the following four days, seven more girls (H, I, J, K, L, M, and N) became ill. On May 16 the outbreak was reported to the University physician, and an investigation was made.

The following facts were gathered: Of 18 persons at the banquet, 14 became ill with symptoms suggesting typhoid, some developing "rose spots." The house mother, R a rushee, O and P, were not sick; the food was cold meat loaf, commercially canned string beans, boiled potatoes, bread, butter, coffee, and fruit jello; the house mother had prepared the meat loaf May ninth, in the following manner: Veal and pork were purchased at a neighborhood store and cooked; the broth was poured off; the meat was cut up in the grinder; gelatin was dissolved in the broth and poured over the meat; this was then molded into a loaf and stored in the ice-box. An old wooden ice-box was used; it probably maintained a temperature not below 55°. Of the 18 at the party, 16 had eaten meat loaf, and the remaining two, O and P, had been at the meal but had eaten no meat, and were not sick. R had eaten meat, but was not sick. The house mother had pre-

pared the meat, had eaten it, but was not sick.

Clinical and laboratory findings indicated an outbreak of food poisoning by a member of the Salmonella group, *B. paratyphosus B* (*S. schotumelleri*). Epidemiological data indicated the meat loaf as the infecting food, and the house mother proved to be the carrier of the causative organism. Dr. Mary Estill Caldwell, Assistant Professor of Bacteriology at the University, classified the *B. paratyphosus B* organism isolated from the patients by agglutination absorption tests as *Salmonella schotumelleri*, Bergey. The blood counts were made by H. D. Jessop of the Tucson Bio-chemical laboratory. The feces, urine, and blood cultures, and the Widal tests were made by the writer at the Arizona State Laboratory; he also secured the epidemiological evidence.

Laboratory Examinations: Stool specimens were collected in 30 per cent glycerine-saline solution in test tubes. (This medium gives excellent results.)

A: Feces, negative; urine, negative; blood culture, negative; agglutination with *B. paratyphosus B* antigen in 1-1600 dilution on May 24th; leukocytes, 6,000; neutrophils, 66; small lymphocytes, 26; large lymphocytes, six; transitionals, two.

B: Feces, negative.

C: Feces: *B. paratyphosus B* isolated: patient's blood serum agglutinated this organism; blood culture: *B. paratyphosus B* isolated; agglutination with *B. paratyphosus B* antigen in 1-1600 dilution on May 22d.

D: Widal, negative.

E: Feces: *B. paratyphosus B* isolated; serum from patient "C" agglutinated this organism.

F: Feces, negative; blood culture, negative; widal, negative.

G: Feces, negative; blood culture, negative; agglutination with *B. paratyphosus B* antigen in 1-80 dilution.

H: Feces: *B. paratyphosus B* isolated; blood culture, negative; leukocytes, 6,800; neutrophils, 71. basophils, one; small lymphocytes, nine; large lymphocytes, 10; large mononuclears, three; transitionals, six.

I: Feces: *B. paratyphosus B* isolated; leukocytes, 5,600; neutrophils, 76; small lymphocytes, 16; large lymphocytes, eight.

J: Feces: *B. paratyphosus B* isolated.

K: Feces, negative.

L: Feces: *B. paratyphosus B* isolated.

M: Feces: *B. paratyphosus B* isolated; serum from patient "C" agglutinated this organism; blood culture, negative; agglutination with organism from own stool in 1-6400 dilution; agglutination with organism from "C" blood in 1-400 dilution; leukocytes, 3,800; neutrophils, 30; small lymphocytes, 29; large lymphocytes, 20; large mononuclears, eight; transitionals, four.

N: Feces, negative.

O: Feces: *B. paratyphosus B* isolated; agglutination with *B. paratyphosus B* antigen in high diution (commercial laboratory); own organism agglutinated with blood of "C" and "M".

P: Feces, negative.

Q: Feces, negative.

R: Feces: organism isolated, culturally resembled the Salmonella group, but failed to agglutinate with our antisera.

Feces from the two past, and the present, cooks failed to show organisms of the Salmonella group.

The house mother said she had never been sick in her life. When she was removed from her position because of the organisms isolated from her stool, she went to a local physician. Her history, as told to the physician, was that several years previously she suffered from gall-bladder trouble, and now constipation.

The specimens of her normal passage were obtained. They were foul smelling, entirely mucoid, and contained undigested vegetable material. Direct inoculation of E.M.B. plates was made separately and simultaneously by Mr. Jessop and the writer. Pure cultures on both plates were obtained of *B. paratyphosus B*. Mr. Jessop did a microscopic widal on her blood serum, and it was positive for Para B in 1-160 dilution (highest titre run).

This outbreak presents a problem that might have to be met by any institution. Eating establishments on the various campuses are often under direct supervision of school health authorities, so that sanitation and control of food handlers can be adequate. Sororities, fraternities, and eating clubs present a more complex problem. Cooks are usually fairly permanent, as well as the house mothers and house managers, so that routine checks can be made on



these individuals. Table boys and waiters are not so easily controlled, as these jobs often are rotated among the needy students. Also, the kitchens are open to any member of an organization, and especially in sororities, the members prepare luncheons for themselves and friends.

The University of Arizona is inaugurating a plan, to take effect this fall, that should help to prevent similar outbreaks. Before a person is approved by the Dean of men or women, for cook, house mother, or house manager, stool and urine specimens must be submitted for examination. Periodic examinations are to be made throughout the year. Regular sanitary inspection service also will be inaugurated for each house.

(I wish to make acknowledgment to Dr. Mary E. Caldwell, for advice and for doing agglutination absorption tests; to Dr. Lewis Howard, for the collection of specimens and cooperation during the outbreak; to Mr. Jessop, for records of the specimens he examined and his cooperation with the Laboratory; to the medical staff of the University for suggestions and complete cooperation as well as to all local doctors handling individual cases during the outbreak.)

(The following are extracts of a letter from the City of Chicago Board of Health, to Dr. Lewis H. Howard, Director, Pima County Health Unit, Tucson, Arizona: Mrs. P. (the house mother in the above account)—a resident of Tucson, Arizona, while under treatment for some other condition by Dr. R. Levy, of 104 South Michigan Avenue, this city, was discovered to be harboring the germs of Para B. typhoid. On September 4, Mrs. P.—left Chicago without our consent, and is said to have returned to her home at Tucson. This letter is written for your information.)

## SILICOSIS

By JAMES A. BRITTON, M. D.  
Chicago, Ill.

(Read before the New Mexico State Society at its 52nd Annual Session, Las Vegas, N. M., July 19-21, 1934.)

A disease of the lungs following prolonged exposure to certain types of dust has been noted in medical literature for a century or more, but a real understanding of this disease entity had its beginning less than 25 years ago, and most of the development of this knowledge has been during the last 10 years. There was very little in medical literature up to the last decade except large names and descriptions which were characterized by general, rather indefinite, explanations. The vague term "pneumoconiosis" was used; sub-classifications for al-

most every type of dust were coined and passed on from text-book to text-book.

It is only in the last few years that investigators have shown that dusts are harmful in proportion to their silica (SiO<sub>2</sub>) content. Very recently the English geologist Jones startled us a bit with the idea that the trouble-maker is not so much the silica itself as sericite, a form of minute needles of mica which is found in association with quartz. Be that as it may, many careful observers have shown that those who become disabled because of dust inhalation are those who have been exposed to a dust with a large silica content.

It is impossible to follow step by step the development of our present knowledge of silicosis. Hundreds of investigations have been made and as many papers written on this subject in the last few years. No attempt will be made at this time to give proper credit to all authors.

Those who are especially interested will find in the recent volume by Davis, Salmonsens and Erlywine a complete bibliography. The papers which have been of particular help to me are those by W. S. Miller of Madison on the anatomy of the lung, those by L. U. Gardner of Saranac on pathology, and those by H. K. Pancost and E. P. Pendergrass of Philadelphia on x-ray of the chest.

The understanding given us by Miller of the arrangement of the peribronchial and perivascular lymph channels with the location of the lymph nodes helps us to see what happens to dust particles when they get into the small air cells of the lung. Numerous studies have shown that most dust particles which enter the air vesicles are less than five microns in diameter. What happens to these minute dust particles, how they are taken up by special phagocytes, how these phagocytes enter the lymph channels, where they go and what eventually becomes of them have all been graphically described by Gardner and others.

The pathological change resulting from the deposit of silica in the lymphatic structure of the lungs is principally that of replacement of normal cellular structure with fibrous tissue. Just how this is brought about was thought by some observers,—because of the relative insolubility of silica,—to be the usual tissue process following mechanical injury. At present it is

generally believed that the silica slowly takes up water, and this makes possible a chemical action on protoplasmic structure. Some designate this a cell poison.

Irrespective of just how it happens, however, the pathological condition which produces symptoms in the disease called "silicosis" is the reduction in lung capacity by an overgrowth of fibrous tissue. It is also a matter of common observation that the individual who has become disabled because of silicosis rarely dies of uncomplicated silicosis. A great many such individuals die of tuberculosis.

There is much argument about this fact. Some contend that silicosis predisposes an individual to tuberculosis or tends to activate or accelerate an old tuberculosis. I wish to suggest that tuberculosis as an infection and as a disease is very common and any one who has had much clinical experience with those who have tuberculosis will have observed that there is a large variety of determining factors which seem to stand out as of primary importance in different cases.

The diagnosis of silicosis of any stage or degree is not a job for an inexperienced clinician or an x-ray technician. Even for those with the greatest experience a positive diagnosis is frequently impossible. History of exposure of a known degree for a sufficient length of time, clinical evidence of a pulmonary disability and characteristic x-ray findings are all essential to a diagnosis. Of one hundred men exposed to a given dust hazard only a certain percentage will ever develop a disabling silicosis.

It may be definitely known that one man developed a disabling silicosis in five to 10 years; others may take 20 or 25 years, or may never become disabled because of this condition. A man with disabling silicosis must show respiratory embarrassment of some appreciable degree. One who does not show restricted chest movement and dyspnea on moderate exertion can not have much fibrosis. It takes more than the average x-ray experience to interpret the markings of a silicotic chest plate. There are too many things that look like silicosis, but are not, that will trip the inexperienced. When the markings are indefinite or questionable there is never a silicotic disability. Where there is a bona fide disability the

chest plate is always startling in the degree of fibrosis.

The reason I am emphasizing these points in diagnosis is because the silicosis "racket" is becoming a national scandal. Legitimate industry is being blackmailed; honest workmen are being ruthlessly exploited—for the financial advantage of a few unscrupulous lawyers.

The managements of most modern industrial groups make sincere attempts to meet just obligations to any injured in their employ, irrespective of whether the injury is accidental or occupational. Nothing is gained for an employee or the community in which he lives by excessive claims for damages for a slight or insignificant disability.

There is no question but that there have been and are now positive cases of disability due to the inhalation of silica dust. There is also no question about the general health of industrial workers being better today than it has ever been. Occupational disease in general, and silicosis in particular, are being aggressively studied in every part of this country. Just as in the "safety first" movement the elimination or guarding of accident hazards was the keynote of its program, so the control of dusts and other unhealthful products of modern industrial processes is one of the principal jobs of the industrial engineer.

This is the only effective treatment for a condition which is potentially a producer of silicosis. Little is there for the doctor to do after there is unquestioned disability. He can point to the results of a certain kind of exposure and can suggest the necessity for prevention. If his observations are accurate and conclusive his advice should be of great help in eliminating occupational health hazards and preventing the development of new cases of dust disease.

#### DISCUSSION

Dr. W. W. Waite, El Paso, Texas (Opening): The subject of silicosis is a very interesting one. A few weeks ago I had the opportunity of performing an autopsy on a man who died of silicosis complications. He had had silicosis for 25 years, but the chest picture showed he was still in the second stage. His final illness began with an abscess behind the right kidney and then an abscess developed in the upper lobe of the right lung. I doubt if we get many cases in the second stage for post-mortem study. The little nodules throughout the lungs are in a fine state of preservation and for microscopic study furnish fine material. I hope at some time to get up a report on this case.

I surely appreciate Dr. Britton's paper and his splendid manner of presenting it.



Dr. L. O. Dutton, El Paso, Texas: There is one problem that arises in industrial consideration of these cases. In studying the miners, we see a great many chest pictures which indicate an amount of silicotic fibrosis. The question is how long can they work without becoming disabled. We have been trying to evaluate general simple tests, but so far we have not found one which works well. We think we will get a clue as to degree of disability by using the duration of voluntary apnea as a guide. I should like to ask Dr. Britton if he has any ideas along that line.

Dr. R. O. Brown, Santa Fe, N. M.: I had the task of reading some of the x-ray plates during the health survey and it was interesting to see the amount of silicosis from plates of people living in the southern end of the State. Many of the old settlers came out here on account of tuberculosis and in addition to the scars for healed tuberculosis, there was a large amount of silicosis due to dust. I have seen cases with marked silicosis in which empyemas and tuberculous infection existed.

Dr. Britton (closing): In regard to chest capacity, I remember my early days in the university gymnasium. There was a machine there for measuring chest capacity. When we first tried to operate this machine the reading was surprisingly low, but after two or three weeks' practice the reading was nearly doubled.

The best test I know for determining a man's chest capacity, if you have any doubt in your mind as to the individual, is to exercise him. Chest expansion is much easier and generally better determined with the tape line.

We have read in the literature that there are cases that die simply because they cannot breathe any longer; they have no lung space left. But in ordinary practice we do not see this. At a recent meeting in Philadelphia, one of the speakers said that in two or three cases death was due to cardiac disease. I have seen silicotic individuals who had large hearts, but have yet to see one die of a dilated heart.

The industrial physician who is called upon to determine in a given industry when a man shall stop his exposure has a very difficult problem and one that is extremely hard to answer. It is generally true that a fibrosis of considerable extent, once established, slowly progresses.

By the wide-spread every-day use of the x-ray we hope in a short time to have a better understanding of the rate of progress of fibrosis and so be better able to determine when we must not allow men to have additional exposure.

## SURGICAL PATHOLOGY OF PERITONITIS

By DR. J. W. KENNEDY, M.D., F.A.C.S.  
Philadelphia, Pa.

(Read before the New Mexico Medical Society at its Fifty-second Annual Meeting, Las Vegas, July 19-21, 1934.)

It is my privilege at this hour to discuss with you the reactions of the peritoneum and the surgical pathology of peritonitis.

We feel that the discussion of surgical pathology of peritonitis will have to be entirely rewritten. It will be necessary for the profes-

sion to better understand the functions of the peritoneum in order that the surgical pathology of intra-abdominal infections is more fully understood.

It was with this idea that I have chosen for my subject "Reactions of the Peritoneum," as well as "Surgical Pathology of Infections of the Peritoneal Cavity."

Twenty-odd years ago the "hands-off" method of treating the peritonitic peritoneum from the ruptured appendix was popularized and the so-called physiological age in treating the peritonitic abdomen was born. We predicted at that time that this timid, indifferent, incomplete method of attacking the peritonitic abdomen would probably double the mortality in the perforated lesions of the abdominal cavity and the complicating peritonitis.

The physiological age in treating the peritonitic abdomen has reigned for the past twenty-odd years. You are familiar with its death rate and the general dissatisfaction with its therapy, the expression of which have filled our medical journals during the past four or five years.

Popular teaching in the medical universities in America during this physiological age of surgery of the peritonitic abdomen has been more or less standardized and therefore the rule of the majority has quite stamped out individual opinion which might oppose popular views. This is always so and often obstructs progress.

Nothing could be more destructive of life than to halt the fight which for years has been waged against the late treatment in the perforated lesions of the abdominal cavity of which the gangrenous appendix is the type. The endorsement of the so-called physiological age in the treatment of the perforated appendix and its complicating peritonitis has given disastrous results.

The premise from which the physiological surgeon bases his arguments is established upon the following factors or arguments for his incomplete surgical procedures: That the peritonitic peritoneum must not be invaded surgically; that adhesions incident to any acute involvement of the peritoneal cavity must not be attacked on account of fear of spreading infection; that the peritonitic peritoneum must not be manipulated on account of the fear of increasing absorption of toxic matter; that the

peritonitic peritoneum must not be dealt with surgically on account of fear of shocking the patient; that the gangrenous and perforated appendix must not be removed if adhesions are to be broken in order to remove the organ. Adhesions are sacred and must not be attacked is the ruling passion of the physiological surgeon. That the peritonitic patient must be put on the waiting list for subsidence of acute symptoms. With all of these DON'TS, what can be done surgically? If the abdomen is opened by the physiological surgeon and pus appears in the incision, a drainage tube is inserted somewhere; he is not permitted to investigate as to the location of the appendix and, therefore, the tube may not be within six inches of the perforated appendix. The patient is placed in the Fowler position and saline and glucose given in generous amounts.

Such a vague and indifferent classification and advice as to procedure certainly would drive any profession into the stage of insanity of uncertainty. It is not necessary to further discuss the feeble and indifferent working factors of present day teaching. They are feeble in every particular.

With such advice and with the cramped surgical toilet of the present day surgical teaching, it should be evident, how often the surgeon will not even know after he has operated just what caused peritonitis. I have seen this a great number of times.

How has this feeble and indifferent teaching in the peritonitic abdomen from the perforated appendix manifested its shortcomings? Exactly as one would expect. It has given us a high primary mortality and swamped the surgeon with multiple postoperative complications such as bowel obstruction, distal abscesses, retroperitoneal infection and so forth. Anything half done must be done again and again.

When Ehrlich, Metchnikoff and Wright came forth with their teachings that the function of the white blood cell is phagocytic, they illuminated our physiology but unfortunately some enterprising Americans misapplied this cellular function and taught that the phagocyte should be permitted to take care of the peritonitic peritoneum and should not be disturbed in its cellular battle against infection.

Thus was brought forth the hands-off treatment in the peritonitic cases. Let us analyze some of the technical factors of the physiologi-

cal surgeon. We feel it is a mistake to argue that peritonitis is the only complication of the perforated appendix which kills the patient.

We contend that the final and fatal dose of toxins in the peritonitic patient does not come from the peritonitis per se but that the complications of the peritonitis, bowel obstruction, distal abscesses and retroperitoneal infections are more often the cause of the fatal termination.

We further teach that the surgical steps should be directed toward complications of the peritonitis and not the peritonitis per se, and were it not for the complications such as bowel obstructions, distal abscesses and so forth, the peritoneum most often would win the battle.

We postulate that the peritonitis is in a sense physiologic and were it not for the complicating bowel obstruction and so forth which it super-imposes upon the involved peritoneum, the peritonitis would be more of a protective factor than a destructive one.

We further take the position that there is no greater example of reasoning on a false premise than to assume that one portion of the peritoneal cavity is richer in absorbants than the other and therefore we have never endorsed the Fowler position.

We contend that the Fowler position gives a basin six to eight inches deep below the level of the incision and in this sense is a containing cesspool of pus and infecting fluids. Further, the Fowler position may produce a severe heart strain on seriously ill patients. On account of these views of the sitting position, we turn the patient on the right side one-half way between a right side and abdominal position or one might say a right-sided Sims position. This position will early empty the pelvis through the incision at the outer border of the right rectus muscle.

We never use tubal drainage of any kind in the peritonitic patient. All types of drainage are local after the first few hours but a great area of the peritonitic bowel comes in contact with the extensive system of coffer-dam gauze drainage, as compared with any type of tubal drainage. We use the coffer-dam system of gauze drainage in all peritonitic cases. I have fully illustrated this system of gauze drainage in a monograph entitled "Practical Surgery of the Joseph Price Hospital." It is our opinion that any kind of tubal drainage in a case of



diffuse peritonitis is without value or of very little value; it is so feeble in the extent of territory drained. Drainage is the most important and least understood subject in the broad field of abdominal surgery.

You cannot drain a patient unless you remove the pathology or reach the source of infection; therefore the very foundation of drainage is removal of the pathological lesion. You cannot remove the pathology unless you break adhesions in the peritonitic abdomen. You cannot remove the pathology without eviscerating the patient to the extent of the pathological involvement.

You cannot drain the abdominal cavity with multiple and distal abscesses and partial bowel obstructions still remaining. You cannot insert a coffer-dam until the adhesions are broken and the pathology removed as the drain is placed in the site of the pathological lesion. It must be kept in mind that the physiological surgeon and the popular teaching of this day condemns each and every one of these steps.

The coffer-dam system of gauze drainage has its most important function outside of drainage per se; it elevates the viscera, keeping them from prolapsing into the dependent and filthy areas and increases the circulation of the bowel by straightening out its mesentery; this encourages early peristalsis which is so welcome.

The peritonitic bowel is greatly congested, half paralyzed, prone to collapse and to become fixed in the pelvis resulting in post-operative bowel obstruction.

It is evident how thorough the toilet of the peritoneum must be in order that this system of gauze drainage may be instituted.

Compare this extensive system of drainage and radical toilet of the peritoneum with the present teaching of merely opening the abdomen of the peritonitic patient and inserting a tube for drainage which may not be within several inches of the infecting source. Why attack the giant with a popgun?

The popular teaching which places the peritonitic patient on the waiting list for subsidence of acute symptoms incident to peritonitis has driven all late cases to a later operative hour.

Such advice does not make an example of the neglected case and an argument for earlier

work. The greatest sin of today's teaching is that it has classified the supposed peritonitic patient into operative and non-operative hours, such teaching being based on the supposed extent of the peritonitis, whereas the extent of the involvement of the peritoneum is rarely proportional to the signs and symptoms. The physiological surgeon has never become familiar with the fact, that if the last six inches of the ileum is peritonitic, the small area of half paralyzed bowel will produce general distention and diffuse tenderness; the patient as a result may be put on the waiting list for subsidence of acute symptoms incident to diffuse peritonitis, whereas, there was but a very local involvement of the peritoneum such as the last few inches of the ileum.

We contend that the peritonitic peritoneum absorbs very little, that it is more or less a physiological process of protection and in a very large per cent of the cases it is the complications of the peritonitis which give the fatal outcome and as we have already said, we operate for the complications of the peritonitis and not for the peritonitis per se.

We have learned that the peritonitic peritoneum can be handled surgically with less probability of shock than the normal peritoneum and that there is little danger in increasing absorption by such manipulation when it is done with respectful gentleness, which all abdominal surgery commands.

It can be seen that we take the position that the peritoneum has a function just as the kidney or liver has and that its reactions are protective or defensive rather than offensive and it is the surgeon's friend more often than his enemy.

It is true that in certain types of perforated lesions where an enormous amount of toxic material is thrown out into a clean peritoneal cavity, that the patient will die before there is any marked reactions of the peritoneum, but again this teaches that the reactions of the peritoneum are protective such as we see in the ordinary perforations of the appendix.

Answering the discussions which question my statement, that the lymphatics are evidently not the true absorbents of the peritoneum but that the blood vessels are: If a dye is placed within the abdominal cavity, the dye will appear in the urine before there is evidence of

the same in the lymphatic vessels, showing that the dye has passed through the general circulation and is being eliminated by the kidneys before it has appeared in the lymphatic vessels; further, answering the discussion that I failed to state our mortality which after all must be the final answer, I made the statement that the physiological surgeon's statistics must remain unintentionally fallacious as he in no case has revealed the extent of the peritonitis and therefore reports many cases as recoveries from a diffuse peritonitis, whereas the condition was only very local; again the physiological surgeon does not report the patients who die while in waiting for subsidence of acute symptoms which he must do if he measures results with the operator who operates on all cases, irrespective of stage, the first hour seen and demonstrates the extent of the peritonitis in each case.

So I repeat, there is little wisdom manifested in such a comparison of results. Reports from the present day's surgery over America range from 28.4 to as high as 40 per cent in the peritonitic cases.

Our mortality during the past 15 years in the demonstrated peritonitic cases ranges between five and six per cent.

Let me say this, before summing up: This radical surgery which I have just advocated cannot be done with any kind of tubal drainage. All pathology must be removed and an extensive system of coffer-dam of gauze must be properly inserted as a continuous solid wall, the viscera having been held from the dependent and infected points during the insertion of the drain. Never insert two or more drains in the peritonitic cavity.

In summing up the surgical treatment of these peritonitic cases from a ruptured appendix, it is wisdom to say, all depends upon drainage of the peritoneal cavity. Each step of our radical toilet of the peritoneal cavity is a step toward radical drainage.

It must be remembered that: Every adhesion broken is drainage; each pathologic structure removed is drainage; each partial or complete bowel obstruction released is drainage; each distal abscess exposed is drainage; each complete or partial bowel obstruction released is drainage of the mucous membrane of the bowel which is most important as the toxins ab-

sorbed from this mucous membrane surface is often the cause of the fatal outcome and finally the very foundation of drainage is the removal of the primary infecting source. Nothing short of this is real drainage. All these steps are firmly denied by the popular teaching of this day and the outcome is, what you know it to be; that is the reason I have come several thousand miles to discuss this subject with you.

241 North 18th Street,  
Philadelphia, Pa.

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## BORDERLINE MEDICAL AND SURGICAL CONDITIONS

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By J. H. MUSSER

(From the Department of Medicine, School of Medicine, Tulane University, New Orleans.)

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(Read, by invitation, before the Twenty-first Annual Meeting of The Medical and Surgical Association of the Southwest, at El Paso, Nov. 21 to 23, 1934.)

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I have selected this subject for presentation to you today because I think it might be of general interest both to the surgeon and to the internist. There is often considerable difference of opinion, between the two groups in regard to the advisability of operation, in certain conditions, in reference to the indications for operation and concerning post-operative care. I have not attempted to cover the subject exhaustively but rather have taken the opportunity dogmatically to express opinions which I have formed, and succinctly to state certain thoughts concerning operations from the worm's eye view of the medical man. What I have to say will be largely a matter of personal opinion, although substantiated by my observations of the work of others.

I propose to discuss under main headings the lesions of the various tracts and systems of the body in order to correlate intelligently the possible relation that these conditions may have upon the one and the other. I do not propose to touch upon those conditions which belong distinctly outside of the realm of the specialty of internal medicine. I will not include, therefore, such things as gynecologic lesions, disor-



ders of the prostate and bladder and the nose and throat, the eye nor the ear.

#### THE GASTROINTESTINAL TRACT

The divergency of opinion concerning certain operations upon the gastrointestinal tract has long been a subject of controversy between the internist and the surgeon. Some thirty years ago, for example, at one of the early Congresses of Physicians and Surgeons held in Washington, the subject of debate for the meeting was the medical versus the surgical treatment of gastric ulcer. While the ideas have been more definitely defined concerning the indications for operation in gastric ulcer, nevertheless there still exists a question in the mind of the practitioner or the surgeon as to the advisability or inadvisability of operation.

**The Esophagus:** There is very little opportunity for discussion concerning the esophageal disorders and the relation they bear to operation. Opinion is more or less unanimous that a foreign body, for example, must be removed by surgical methods, and that tumors are benefited solely by operation. On the other hand stricture of the esophagus, unless there is complete occlusion of the passage, is probably more satisfactorily taken care of by simple non-operative measures than by operation. Spasms of the esophagus likewise are cured by non-operative interference.

**The Stomach:** By far the most important gastric condition of an organic nature is peptic ulcer. The ordinary acute ulcer undoubtedly is recognized but infrequently and many attacks of so-called indigestion represent ulcerations in the mucosa of the organ which heal relatively promptly and quickly. It is decidedly my impression that most ulcers are of this type and yield to medical treatment most satisfactorily. The treatment is not time-consuming nor difficult and can be carried out while the patient is pursuing the ordinary activities of life. Illustrative of how valuable is treatment of gastric ulcer may be shown by the experience of one large London Hospital—St. Thomas'. Gastric ulcer is more common in England than in this country. I was told several years ago that since the institution of the Sippy treatment operation on ulcer had virtually stopped. When complications develop in ulcer, however, there can be no question but that operation is decidedly indicated. A firm, calloused ulcer at the pylorus producing ob-

structive symptoms will not heal under any possible type of medical treatment. It is likewise obvious if perforation occurs and operation is not immediate and prompt that death will occur.

**Cancer of the Stomach:** In cancer of the stomach usually the question of operation boils down to whether or not it is going to make the last few months of the patient's life comfortable. Here clinical judgment is of paramount importance. Gastric carcinoma is so infrequently recognized at an early age, when operation may cure, that the question of operation becomes largely academic. Here again I wish to state that I believe operation, when a diagnosis is made, should be performed. In the majority of instances it will add some months to the life of the patient and it will give him a greater amount of comfort, discounting the few days of post-operative unhappiness, than if untouched. Then there is always the possibility that the diagnosis was wrong, which the operation will indicate.

**Appendicitis:** In the typically acute attack of appendicitis there will not be the slightest difference of opinion as to the importance of operation and the necessity of removing this acutely inflamed organ. In regard to the appendix, what I do wish to protest against most vigorously and emphatically is the removal of an appendix under the diagnosis of chronic appendicitis, an entity which I think is extremely rare as contrasted or compared with the innumerable appendectomies that are performed every year in this country. If the surgeons follow up their cases of so-called chronic appendicitis they will find in the majority of instances that the relief of gastric symptoms and vague abdominal pains and discomforts has not been obtained by taking the appendices out; nor can surgeons entirely salve their consciences by the pathologic reports of a few minute deviations from the normal broadly classified as chronic appendicitis but which actually represent practically nothing of pathologic moment. As Boyd says in his book on pathology, "it would appear preferable to avoid the use of the term appendicitis and the even more objectionable 'chronic appendicitis'." This is the expression of a pathologist.

**Large Gut:** The large intestine is subjected at times to operations for conditions which are

purely medical. Fortunately the fashion of a few years ago of removing long sections of the large intestine, because the colon was ptosed or because the patient suffered from chronic constipation, has almost ceased. The large intestine now is operated on almost solely for malignancy though occasionally the surgeon and internist will consult concerning the advisability of doing an appendicostomy or ileostomy when there is present an ulcerative colitis. Here again operation is indicated only after a careful evaluation of the result of medical treatment, the condition of the patient or the necessity or advisability of having the patient return promptly to his usual occupation.

**The Lower Gut:** When it comes to the question of operation in the extreme lower gut, just a word of caution in regard to making a diagnosis of hemorrhoids without careful proctoscopic examination. Often the so-called hemorrhoids are dependent upon an amebic infection or a malignancy which may be overlooked unless the patient has had a proctoscopic examination.

**Visceroptosis:** The various operations that have been done in the past for ptosis of the abdominal organs, as with the colon operations, have been largely discarded, and wisely so. It has been found virtually impossible to tack up the stomach that is ptosed and to have it remain permanently where it should be, nor are the symptoms, in most instances, dependent upon a dropping of the organ. Consequently the operation has been discarded.

**Miscellaneous Abdominal Conditions:** Tuberculous peritonitis is a condition which is decidedly benefited by the mere opening of the abdomen. As this apparently is the result of the air that is introduced during the course of the operation, a few physicians have practiced the injection of air into the abdominal cavity without doing an actual laparotomy. A rare condition, at least only recently recognized as being of any moment, is that of chronic duodenal ileus. In so far as I know the only satisfactory method of treatment of this condition is operation.

**Liver and Gall-Bladder:** In diseases of the liver there are a few expressions which are alleviated by operation. A single abscess, of course, requires opening. An amebic abscess on the other hand sometimes yields magnifi-

cantly to proper amebicidal treatment. Occasional healed abscesses found at autopsy, or spontaneous healing resulting after the abscess perforates through the diaphragm into the bronchus or an abscess yielding to medical treatment, are not sufficiently good reasons for postponing an operation. The chances for recovery are infinitely better when proper operative procedures are carried out than when the abscess is left to nature and medicine.

**Cirrhosis of Liver:** I may be anachronistic in that I believe that cirrhosis is satisfactorily treated by one or another of the operations employed in establishing a collateral circulation. This is contrary to the opinion of most men but I have a feeling that operation should be tried because when all is said and done an occasional cure does take place and nothing else is of any value or moment therapeutically.

**Gall-bladder and Bile Ducts:** Omitting, of course, the obvious surgical conditions of this tract there are two frequently operated upon lesions which I wish to discuss briefly. First of these is the so-called syndrome of chronic cholecystitis. Here, as with "chronic appendicitis," operation is of little value because the relief of the patient's symptoms is found to occur in only about one-third of the cases (Bloomfield). There should be a definite history of previous acute colicky attacks or gall stones or proven infection even to discuss operation in this condition. Secondly, in cholelithiasis I believe that operation is done too frequently. Only when there are definite attacks of biliary colic is operation indicated. Otherwise the patient's future may be unnecessarily jeopardized as with careful medical care she could live a comfortable and successful life even if stones are tucked away in the gall-bladder.

**Pancreas:** The recent discovery of that interesting condition of hyperinsulinism in which the patient has periodic or sporadic attacks of lowered blood sugar associated with the usual symptoms of hypoglycemic shock, has in a few isolated instances been relieved by the excision of a cyst of the pancreas or by removal of a part of the tail of the organ. In diabetes mellitus the problem when some surgical complication occurs is not whether or not the patient should have an operation but how best to prepare him for it. This can be done best by an



internist and the patient should be watched carefully after the operation by the man who is best qualified to take care of this type of case.

#### THE PULMONARY SYSTEM

It hardly seems necessary to discuss lung surgery in any detail before an audience such as this to whom the subject is probably more familiar than it is to me. I would like to make, however, a few observations on the non-surgical treatment of conditions which are habitually thought of as being surgical.

Among the acute conditions lung abscess is one that has been treated satisfactorily medically in about 50 per cent of cases (Miller). Artificial pneumothorax, postural draining, bronchoscopy, will often yield results which are truly magnificent. If, after a period of time, these measures fail to produce a fall in the temperature or if the pneumothorax does not compress the lung, then the more devastating surgical procedures must be carried out.

The treatment of empyema has been revolutionized since the war. Prior to this time as soon as pus was discovered in the pleural cavity immediate operation was done. Now it is known, first that immediate operation is contraindicated and second, that many cases of empyema yield to repeated aspirations, the pus removed being replaced by an equal amount of air. In the course of pneumonias with empyema during the war, it was virtually a death warrant to operate: Hence the empyemas were treated by aspiration and introduction of air. Many of the cases did exceptionally well. This has led to marked conservatism in the treatment of this condition. At the Charity Hospital, Danna, of the surgical staff, has reported magnificent results with aspiration-pneumothorax.

In a discussion of chronic lung conditions alleviated by surgery, the most important by far is tuberculosis. Some of the operations that have been advocated, such as phrenectomy, are comparatively simple. On the other hand, thoracoplasty is an extremely severe operation with secondarily marked physiologic disturbances on the affected side. I think that the important considerations to remember, whether apicolysis is done, or thoracoplasty is the procedure of choice, that pneumothorax should first be given a thorough and complete trial, together with the usual symptomatic treat-

ment. Perchance a pneumolysis may have to be performed if collapse can not be obtained.

Chronic pulmonary condition, such as extensive bronchiectatic changes, limited to one lobe, may yield to lobectomy. It is a severe and grave operation and should not be attempted without a full explanation to the patient of the attendant risks.

Remarkable results are being obtained now by lung surgery as a result of: First, increased skill of the surgeon, and second, anesthesia. Operations are now being done on the lungs which only a few years ago were considered impossible. There certainly has been in the past few years a reversal of thought concerning lung surgery. More is being done than ever before, but by the same token certain conditions always until the last few years considered to be surgical (lung abscess, empyema) are being treated by methods which are considered to be medical in nature. Here I include artificial pneumothorax as a medical procedure.

#### THE CARDIOVASCULAR SYSTEM

I first wish to mention the very excellent results that have been obtained first in Boston, but subsequently throughout the country, in the treatment of chronic heart disease either of the congestive type or of the anginal type, by operation on the thyroid gland. The total ablation of the normal thyroid in advanced cardiac disease has proved a most successful measure adding materially to the comfort of the patient and definitely prolonged life. The rationale of this operation is to decrease the total metabolism thereby in turn reducing the circulatory demands made upon the heart. The complete removal of the thyroid gland should not be considered unless all other measures have failed to relieve the patient. This is our present viewpoint but I have no doubt in the course of a comparatively short time the operation will be performed on patients in whom congestive failure or angina has been manifest only to a moderate or slight degree.

In the treatment of the patient with angina pectoris the surgeon has been of assistance but the wave of enthusiasm about sympathetic operations in angina pectoris that passed over the country a few years ago has largely subsided. Here I would warn that the operation should be indicated only in those who are suffering intensively from the angina and I would ac-

centuate the fact that angina is a distress signal and if the pain pathways are obliterated then the individual and his physician have no way of telling how much his heart is being overburdened.

In the treatment of chronic adhesive pericarditis, a most disabling condition, relief of the mediastino-pericardial restrictions by operation has at times yielded magnificent results. Operation should not be attempted unless the patient has a reasonably satisfactory cardiac reserve.

#### THE BLOOD VESSELS

Operative attack on an aneurysm depends very largely on the location of the pathologic condition. Aneurysms of the extremity, of course, need no treatment other than surgical. With the ability to open the chest which can now be done with a minimal amount of danger, there is no question but that superficial aneurysms of the aorta may be helped more frequently than they have been in the past.

Arteriovenous fistulae are lesions which intrigue the internist because of the marked effect they have on disturbing the physiology of circulation, but they are treated and should be treated by the surgeon.

Thrombo-angiitis obliterans is a condition which in many cases has to be ultimately treated by amputation of the involved extremity, but I will call attention to the relief that these patients may have by intensive medical treatment and I would stress the value of certain surgical measures when medical treatment is unavailing, such as sympathetic ganglionectomy.

#### THE SPLEEN

There are several conditions associated with disturbances in the hematopoietic system which come in the province of the internist but which ultimately are helped only by surgical procedures. First of these is splenic anemia (Banti's disease) when observed before the other condition is thrombocytopenic purpura in which removal of the spleen produces magnificent results.

#### THE THYROID GLAND

The two important thyroid conditions about which the internist and the surgeon quarrel are nodular goiter and exophthalmic goiter. Dogmatically I believe that nodular goiter should always be removed. Appearing late as they do in life there is always the possibility

of malignant changes taking place. If hyperthyroidism is not present in the majority of nodular goiters, it will develop. In exophthalmic goiter I think it is largely a question of the severity of the thyrotoxicosis and the economic status of the patient. If the former is marked operation should be carried out, if not, these people can be carried along by x-ray and radium therapy more satisfactorily if they have the time to devote to this form of treatment. While it is true that in large clinics the mortality rate of thyroid operations is approximately one-half of one per cent, nevertheless these figures do not hold good in the smaller and less well organized hospitals.

#### OTHER GLANDS OF INTERNAL SECRETION

Surgery has made such great advances that many conditions which were thought inoperable are now being successfully alleviated through operative measures. Pituitary tumor offers an excellent example. Hyperinsulinism I have mentioned. Even the parathyroids are being reached, as exemplified by the remarkable case recently reported in which a parathyroid tumor was removed. Tumors of the adrenal medulla have been diagnosed and removed by operation (Pincoffs). It hardly seems within the scope of this paper to discuss operative procedures in the male and female gonads and breasts.

#### UROGENITAL TRACT

The internist probably comes less frequently in contact with borderline medical and surgical conditions in this particular tract than in any other in the body. Usually the person who has a bladder or a prostate disturbance or even a pyelitis consults some one who has specialized in the disturbances of the urogenital tract. Therefore, I will make no further mention of conditions involving this system.

#### NERVOUS SYSTEM

Here again we are going somewhat outside of our field of endeavor and our field of discussion because in brain tumor, or hematomyelia or tic douloureux a specialist is usually called in to make the diagnosis, in this instance the neurologist, and operation is discussed with the surgeon. I wish to emphasize the benefits, however, that have been obtained from operation on the peripheral nerves. When I speak of operation I may be exceeding the bounds of the usual concept of operation because the injection of alcohol or salt solution



into the sheath of the nerve is really not a surgical operation, but on the other hand the avulsion of a sensory root is decidedly the function of a surgeon.

#### CONCLUSION

Perchance it might have been more satisfactory to have reviewed only a few of the more important clinical conditions which concern the internist and the surgeon than to touch lightly upon the entire domain of medicine. It might have been better to stress the contraindications in these conditions for the benefit of the surgical-minded rather than to have attempted to take a reasonably comprehensive birdseye view of the whole situation. However, I do feel that at times it is worth while to review a whole broad field and to coordinate our ideas and thoughts concerning a general problem such as is the one which has to do with borderline conditions that may be medical or may be surgical.

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## CANCER

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by

**DR. JOHN H. VAUGHAN,**  
Amarillo, Texas.

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(Read before The New Mexico Medical Society, at its Fifty-Second Annual Session, at Las Vegas, N. M., July 19-21, 1934.)

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Cancer is an abnormal growth developing in or on the surface of the human body—causing pain and disability at some time in life to about one out of every 10 persons in the United States, and bringing death to 100,000 of them annually. It is preventable by removing predisposing causes; cancer is curable in the early lesions in almost 100 per cent of cases.

In spite of what we consider improved methods of treatment the death rate is increasing yearly. It not only is bringing distress to thousands of homes but it is an economic waste. When cancer gets its fangs hung into a wage earner, he is a loss to the community; he is a loss to his family and he becomes a burden to them. It is worse than that in case of the uncured mother of a family. Many wage earners could be spared to the community and mothers to the families if simple looking sores on lips, tongues or skins, or irregular bleedings were presented to physicians capable of making cor-

rect diagnoses in time for cures to be effected.

To our profession there is a challenge from cancer. Are we strong enough to whip it? We can do it by getting in the battle before it gets too much start on us. We must be able to diagnose not only the early cancer but also conditions existing which may favor the development of cancer. When we have taught our patients that any lesion anywhere on the body existing more than a few weeks is or may become a cancer, and further, that in the beginning they are curable and after they metastasize very few are cured, I believe they will seek the advice of capable physicians earlier. Then when the members of our profession learn to quit temporizing with suspicious lesions, the percentage of cancer deaths will drop.

The death rate in the United States is 95 for every 100,000 people.

One big obstacle to the early treatment of cancer is in our own profession. So often we do not recognize cancer until it is in the stage where the layman can diagnose it himself. I think the reason we are so slow to know a cancer when we see it is just as in many other conditions which we do not see frequently. There are 100,000 deaths from cancer in the United States yearly, and 1½ times that many physicians in the same area. Those in the profession who come in contact with many cancer cases should go to the trouble and expense of making lantern slides to show not only to our profession but to the laity through the P. T. A. or other organizations. Many patients coming direct to me for cancer have come because of something he or she has heard some doctor say in years gone by, as to the appearance, early treatment, etc., of cancer. Sometimes false notions have been taught the public by us because we inadvertently tell them we know nothing about the cause and cure of cancer. We are hardly willing to admit that this is a true statement of facts. Fraude said "The knowledge which a man can use is the only real knowledge, the only knowledge which has life and growth in it and converts itself into practical power. The rest hangs, like dust about the brain or dries like raindrops off the stone."

The big problem as I see it is the education of our profession and through them the laity, to seek earlier the advice of the family physi-

cian, as to suspicious lesions. Let them know that practically all cancers can be cured if gotten to the right treatment soon enough.

Every conscientious physician will as cautiously treat a cancer on his patient as he would should that patient be his parent. We probably would not temporize with a cancer on a parent so we certainly should not temporize with a suspicious lesion on another.

The family physician, surgeon and radiologist should cooperate in the effort to combat cancer. People look to their family physicians for instructions in such matters. Bloodgood said that in his experience for the past 40 years the people who are getting well of cancer have definite family physicians.

Our profession is trying to combat cancer in three ways: By trying to find the causes of cancer, by trying to find the treatments for cancer, and teaching the public the dangers of advanced cancer and insisting on an early examination in all persistent lesions. The prevention of any disease depends upon the understanding of the laity as to its causes, symptoms and methods of treatment, etc.

**Causes of Cancer:** Many men believe that cancer always develops on previously diseased tissue and those harboring low grade infection. With this condition existing we may have illness which debilitates us and the cancer begins growing. Some of the things that cause those low grade infections are the teeth, gums, leukoplakia in the mouth, keratoses, moles, warts, scars, etc., on the face, corset rib on breast, lacerated cervix, gastric ulcers, etc. Others believe that cancer is an infection and still others believe that it is an embryonic cell become active.

**Classifications:** There are many classifications of cancers. As to their malignancy they are graded one, two, three, four. There are carcinomas and sarcomas with their many modifications. We might also divide them into deep and superficial. We are able to diagnose the superficial earlier because we see them. The death rate of the deep malignancies will probably always be high because the onset will be insidious; they are often incurable before we know they are present.

As to whether a lesion is malignant can be determined grossly in a large per cent of cases by a doctor who is seeing and treating many

cases of cancer. There is only one way whereby we may absolutely know that a lesion is malignant and that is by biopsy. Many patients have a hard time getting the \$10 where-with to have the tissue examination. I do not do many biopsies. They are necessary in big clinics for statistical purposes. It is helpful in treating cancer to know its grade of malignancy. There is some danger of a biopsy causing a dissemination of cancer cells.

**Prevention of Cancer:** We should prevent cancer just like the engineer avoids wrecks; he does not run red light signals. Before they get serious most cancers flash several red light signals. If every red light signal is observed, cancer will be prevented.

**Prognosis:** There are no very definite statistics as to the mortality rate in cancer, but it is too high. While we are never absolutely sure of curing any cancer we can be about as sure as the fireman can as to whether he will put out a fire that he is called to. A little water will not put out a big fire, but with plenty of water he will put out most of them. Likewise, with the proper means of treatment we will cure most cancers. We believe that practically every cancer is curable while it is a local condition. Later when the cancer cells have gotten into surrounding lymph nodes and established new growths then it is about as impossible to cure the condition as it is to grow a new nose where the nose was cut off. In my opinion this type is and always will be incurable.

**Treatment of Cancer:** The standard methods of treatment of cancer today are surgery, radium and x-ray. Frequently we are called on to treat cases which we do not hope to cure but hope merely to extend life, and make it more bearable. It is better for a patient to die of internal metastases than to die of an external cancer; so, relieve them if possible.

Surgery has been used in cancer for many years. In the early days practically the only cases that would submit to surgery were the terminal ones. It is easy to understand that most of the cases came to an early end, and it is no wonder that the laity began to think that it was disastrous to operate upon cancer. That idea is still in the minds of many persons. Then came the day of caustic pastes. Many submitted better to this treatment because it was get-



ting away from the knife. Fair results were obtained. Then surgeons decided they could cause the patient less pain, do as good or better work and cure more cancers by the use of the actual cautery. As patients gained confidence in the surgeons more work was done with the knife. Then came the x-ray and later radium, the radio knife, etc.

Kaplan, of New York, states that the cancer cure committee of the cancer division, N.Y.C., during the last few years has tested a great many so-called cancer cures and have not found any method or substance offered for treatment of superficial cancer with any superiority over surgery, radium and x-ray.

The shot in the arm cure does not and probably never will exist, whether they are metals, glandular extracts or whatnots. The Blair Bell (Lead) treatment, Coley's toxins, Humber and Coffee extract have all failed. Four hundred fifteen persons with carcinomas and sarcomas treated by the representatives of Humber and Coffee in the W. H. Kellogg Foundation Clinic were not improved. There was no decrease in the pain, in the size of the tumor, nor in the deaths.

The cancer quacks seem to be using caustic pastes, liquids or powder. There are very few reputable men in our profession still using the pastes.

It is as impossible for one to tell another how to treat a cancer as it is to tell him how to ride a broncho. No one technic will suffice for every case. One must see the individual cancer and then prescribe the treatment. He may have to change from one kind of treatment to another. Personally I do not use surgery much in the cancers on the surface. Of course we use cauterization in some cases and the knife in some. Most of my cases are treated with radium alone or with radium and x-ray combined. Cancer of the cervix is treated with radium inside and x-ray externally, and cancer of the breast by irradiation, knife and irradiation. I am glad that I have access to the three: Surgery, radium and x-ray. If a man has all three, he should not be biased in his opinion when he attempts to prescribe a treatment.

Cancer cells are from four to six times as easy to destroy with radiation as are the normal tissue cells. Some cancers which are resistant to the x-ray will respond readily to ra-

dium. This seems to be accounted for by the difference in the biological effect of the two rays.

Radiology in the treatment of disease has reached a degree of accuracy at least equal to that in any other field of medicine. The pioneering work in radiology has been done and the dangers encountered by the pioneer are now past. My results with radium and x-ray are more gratifying than my results in any other field of medicine.

Provocative doses of radium or x-ray may be beneficial in stimulating a mitotic cell division, thus making a tumor more radiosensitive and more responsive to treatment. One of the dangers of radiation treatment of cancer is too little radiation. If it recurs it usually does not respond so well again to radiation.

#### DISCUSSION

Dr. R. O. Brown, Santa Fe, (opening): "Last year at the Roswell meeting, there was considerable discussion as to the advisability of getting biopsies for diagnostic purposes in cases of cancer prior to the time operation was possible or whether such specimens should be taken only under conditions that would permit immediate operation. The idea seemed to prevail that we should wait for biopsy until we were ready to operate and that men who did not have facilities for examination by frozen sections or other method of immediate diagnosis should not make biopsies and await reports. We also discussed which type instrument should be used in operating, whether the knife was still the instrument of choice or whether an instrument of the type of the radio knife should be used; I believe most of the speakers recommended the latter type. I wonder what the attitude now is toward this matter, and I should like to ask Dr. Vaughan to say a word along that line."

Dr. A. E. Winsett, Amarillo, Texas: "I want to ask what percentage if any Dr. Vaughan finds in cases of skin malignancies resisting the irradiation type of treatment?"

Dr. W. W. Waite, El Paso, Texas: "I enjoyed Dr. Vaughan's paper very much—also his pictures. They look quite familiar—in fact many I could reproduce exactly. My work is diagnosis—I am not interested in treatment. Dr. Vaughan mentioned one of his cases, that of the tumor of the eye-ball, as a sarcoma. I should like to ask if it was a melanotic sarcoma. I recall seeing a melanotic tumor of the eye-ball a great many years ago—the patient finally dying of brain tumor. The case of the man with the shoulder which was treated with paste looks to me like a sarcoma. A man living up in this country came to see me recently with a very bad tongue, stating that he had been using a paste on it which some of his friends had given him. The time for treatment had passed and I told him so. His ambitious friends had put him in a place where treatment would be of no avail. Just a few days ago a man came into the office who had a tumor on the back of his hand and friends had smeared it over with paste. The skin was cooked pretty nearly raw from the paste. If there is any way in which this practice can be stopped, it should be done."

Dr. A. C. Scott, Temple, Texas: "The question of cancer is such an enormous one that it is difficult for one to discuss it in a brief period. Dr. Vaughan covered a wide area, but to my notion he omitted one of the most important things and that is the question of education. Unfortunately the profession itself has given so little attention to the question of education on the subject of cancer; they have failed to educate themselves regarding the early stages of cancer and thus detecting the predisposing lesions which are favorable for the production of cancer. They do not think of the small lesions, the early symptoms of cancer, which are shown on the surface. The matter of education of the laity is most important as the most direct way of getting at all the things that help to make this mortality so terribly high. The people have too many erroneous ideas concerning cancer and it is too difficult to get at them. I have many times been engaged to speak to find only audiences of 15 to 20 persons present. The reason for this is that the people have the idea that they know all about cancer and do not need or care to know any more because it is all bad anyway. The general idea is that when you have cancer you might as well go jump in the river because it is all over. To illustrate to what extent the fatal error of ignorance will go, I will mention one case. A Judge, a man of very much more than ordinary intelligence, a well-balanced, thoroughly informed old gentleman, whom I had known a good many years, and had done a lot of work for members of his family, came down to the Hospital one day as a patient. He refused to allow his history to be taken by the younger members of the staff and would see no one except me. When I began to question him, he shut up like a clam. He had an advanced cancer of the breast with evidence of metastases to his armpit; his circulation was involved. The pleuritic pain suggested to him it was time to see a doctor. I felt I had to tell him the truth, so I said to him, 'Judge, I want to be frank with you—you have cancer.' I said, 'to be further frank with you I cannot do you any good—it has gone too far.' He said, 'I know that—I have known all my life that nothing can be done for cancer. I have known it all along; soon after it started I was convinced that it was cancer. I did not come to you until today because I knew there was nothing you could do for me; but I come to you now because when I do get to that final stage when I have to suffer such terrible pains, I want you to be sure and give me enough medicine so that I can tolerate it.' Now, gentlemen, believe me, when I heard that story I almost cried to think that here was a friend of mine whom I might have saved had I only known in time. To think that a man of superior intelligence, a man who had been Judge of a District Court for 18 to 20 years should be so ignorant. Nearly all cancers that are visible or within reach are curable at first. All of them are strictly local diseases to begin with and until they start to metastasize, until the cells have migrated to some distant part. The Judge did not know that; he did not know that a very large proportion of cases of cancer get well. That is the situation with a high percentage of our people. The most direct way to reduce this terrible mortality is to have a doctor in every district—a member of the State Medical Society—who will pay enough attention to the disease to learn the early symptoms, the predisposing things when manifested by certain types of pain, by bleeding which comes from the stomach or intestines or genito-urinary tract; and then not to delay longer. The people ought to know these things; they ought to know the danger signs; they must know that cancer is amenable to treatment."

Dr. Frank H. Austin, Carlsbad, N. Mex.: This whole question hinges on early recognition and I have just a word on that phase that may be worth while. In the past month I have seen two cases of skin cancer, both of about 10 years duration, which were in such a position that they could easily be excised. That was the mode of treatment, using the surgical diathermy knife, rather than radium, because they were accessible and would leave no deformity. One was on the side of the face; the other was on the side of the neck. Both had typical histories and were shown on microscopic examinations to be the basal-cell type of epithelioma. Since this is the only paper on cancer on this program, I should like to ask Dr. Vaughan to give us a word in regard to the early symptoms and diagnosis in cancer of the gastrointestinal tract. During a relatively short time in Carlsbad, I have seen several such cancers previously not recognized because of omission of examination of the tract by fluoroscopy. The most interesting case that has come under my care was that of an advanced cardio-renal disease with retroperitoneal round-cell sarcoma. The heart failed completely after he had starved himself for a period of weeks because of partial obstruction of the sigmoid by the tumor mass. The vital organs were not involved except mechanically by the mass that was about six inches wide and two inches deep from the diaphragm to the tip of the coccyx. A colostomy and deep x-ray therapy was planned for the man, but he died before these could be done. We regret that we did not diagnose the retroperitoneal tumors earlier. They do not affect the vital structures early and some of them melt away, at least temporarily, under deep x-ray treatment. A word from Dr. Vaughan along this line will be very much appreciated.

Dr. John H. Vaughan (closing): "I appreciate very much the discussion of my paper and will close very briefly.

As to the importance of biopsy in suspected malignancies I believe that most doctors who treat many malignancies will know pretty definitely whether or not a lesion is malignant. Many cancer cases are charity and are not able to pay for biopsies. Biopsies are necessary in large clinics for statistical purposes.

In answer to the question as to the resistance to radiation of skin malignancies: I have no statistics but I think probably one out of 15 do not respond to the radium and may need surgery or cauterization.

I appreciate very much Dr. Scott's discussion. He has probably done more toward educating the public about cancer than has anyone else in Texas.

I would urge upon you that you do not let your clientele go along with lesions that may become malignant, but have your eyes open and call their attention to these lesions before they have gone so far that the layman can diagnose them."

## VIOSTEROL'S QUICK ACTION PREVENTS DEFORMITIES

No antiricketic substance will straighten bones that have become misshapen as the result of rickets. But Mead's Viosterol (plain or in Halibut Liver Oil) can be depended upon to prevent ricketic deformities. This is not true of all antiricketic agents, many of which are so limited by tolerance or bulk that they cannot be given in quantities sufficient to arrest the ricketic process promptly, with the result that the bones are not adequately calcified to bear weight or muscle-pull and hence become deformed.



## BROMIDE INTOXICATION

By **CHARLES W. TIDD, M. D.\***  
Topeka, Kansas.

The purpose of this paper is to report three cases of severe bromide intoxication, and discuss briefly the current opinion concerning the use of bromides.

The popular use of the word "bromide" in a mildly derisive tone testifies to the widespread general attitude toward the use of that drug. Bromide was discovered in 1826 by Ballard and first used as a therapeutic agent by Graf in 1840 (quoted by Diethelm)<sup>1</sup> Since then it has been employed in the treatment of many neuropsychiatric disorders, primarily as a sedative. That bromide is a useful drug there can be no question, but it is not surprising that when injudiciously administered there are dangers of ill effects. Warnings as to the ill effects of the drug when given in large doses over long periods have been written from time to time and because of its widespread usage emphasis may well be placed on the frequent occurrence of the bromide reactions, in particular the undesirable mental symptoms that appear in bromide intoxication.

### CASE REPORTS

Case No. I. A housewife, aged 59, suffering from auricular fibrillation, entered the hospital in a confused state. She complained that there were bugs on her skin and chickens and other animals in her bed. Physically, she was a drowsy white female, prematurely aged, with evidence of recent loss of weight. The left border of the heart extended to the anterior axillary line and the rhythm was an irregular irregularity. There was moderate pitting edema over both ankles. Neurological examination revealed nystagmoid jerking of the eyes, a tremor of the hands and absent abdominal reflexes. By psychiatric examination it was shown that she was markedly confused, disoriented and presented prominent visual and tactile hallucinations. In her speech, she showed circumstantiality and confabulation and expressed some paranoid delusions. The emotional state was characterized by many rapid fluctuations. Laboratory examination revealed a mild secondary anemia and a blood bromide of 180 mgm. per

100 cc. This woman had taken 45 grs. of bromide per day for three or four years. Upon admission the bromides were discontinued. The administration of sodium chloride was complicated by the presence of the edema but she was encouraged to use liberal amounts in her diet and six gms. additional were given each day. She remained in the hospital under treatment for three weeks and then discharged against advice. At the time of discharge she had begun to show improvement; the hallucinations appeared less frequently and she was less confused. She was instructed to refrain from all bromide therapy and two months later she was reported to be entirely clear mentally.

Case No. II. A man, 48, was readmitted to the hospital because of "a nervous breakdown." He had been admitted the first time six years previously for alcoholism and acute luminal poisoning. The second and third admissions followed during the next five years, at which times he suffered from acute alcoholism.

At the time of the admission a reliable history was as follows: The patient had not had any alcoholic drinks for four weeks before entering the hospital. He had been working long hours and doing creditable work. About 10 days before this admission he felt nervous and purchased a bottle of "nerve medicine" in a drug store from which he took frequent drinks. However, his nervousness increased greatly and it was necessary to bring him to the hospital. Upon admission he showed a staggering gait and thick speech. He had a maculo-papular eruption over the trunk, and dry swollen lips, with a heavily furred, dry, tongue. He showed bilateral pseudo-ptosis, poor coordination and absent abdominal reflexes. Mentally he was confused and completely disoriented. Visual and auditory hallucinations were present and paranoid delusions were prominent. He thought his wife was unfaithful and that he was going to be shot. Laboratory findings were normal except that the blood bromides were 410 mgm. per 100 cc.

The patient was placed on a regime which included continuous tub baths, increased fluid intake and sodium chloride five gms. four times each day by mouth. Four days after admission the patient's mental condition was much improved. He spoke with amazement of his mental symptoms of the preceding days. The

\* From the Menninger Clinic.

blood bromide content was 208 mgm. per 100 cc. On the fifth day there was a mild recurrence of symptoms. He was discharged, against advice, six days after admission, his condition having improved markedly. After two weeks at home, the mental symptoms disappeared completely.

Case No. III. A woman, 52, was admitted to the hospital because of confusion and afebrile delirium. Two months before her admission, she began complaining of abdominal pain and was given sodium bromide grs. 40 every six hours by rectum and in addition "some bromides by mouth." After five weeks the dosage was changed to 85 grs. per day. This latter dose was continued about three weeks and was stopped five days before entering the hospital.

On admission the patient showed a dry, coated, tongue. There were unsustained nystagmoid jerkings of the eyes. She staggered when walking and her coordination was slightly impaired. The abdominal reflexes were absent and the corneal reflexes depressed. Mentally she was disoriented and confused; there was anamnestic evidence of auditory and visual hallucinations, although these were not present at the time of examination. Paranoid delusions against her family were prominent. The laboratory examination revealed a secondary anemia and a blood bromide content of 248 mgm. per 100 cc.

The patient was placed on a treatment plan which included forcing of fluids, eliminative hydrotherapy, and sodium chloride by mouth, 24 gms. per day; this dosage was diminished gradually as her condition improved. Improvement in the mental condition was noted after the first week; at the end of three weeks her mental symptoms had practically disappeared. The blood bromide estimation, three weeks after admission, showed 64 mgm. per 100 cc.

#### DISCUSSION

In each of the three cases the psychiatric picture as well as neurological findings was typical of bromide intoxication. However, the diagnosis was definitely made only after the blood bromide estimation had been secured. This point has been stressed by Katzenelbogen and his associates<sup>2</sup> and we agree with their general statement that "the most significant fact, if not the only pathognomonic symptom" in the diag-

nosis of bromide intoxication is the determination of the bromide content of the blood.

**Toxic level of blood bromide:** The exact level of the bromide content of the blood at which toxic symptoms appear undoubtedly varies. Wagner and Brunbury<sup>3</sup> wrote that toxic symptoms usually were not present when the bromide content in the blood was less than 200 mgm. per hundred cubic centimeters in patients below the age of 50. They consider, therefore, that a concentration of bromides in the blood of 200 mgm. per hundred cubic centimeters should be considered toxic and that life is endangered if the concentration goes much above 300 mgm. However, in the age group over 50 evidence of intoxication was present ". . . even in the low concentrations."

Harris and Hauser<sup>4</sup> believe that while some persons develop symptoms with a concentration of 125 mgm. per 100 cc. that 150 mgm. should be considered as the level at which symptoms occur.

The blood bromide content depends upon two main factors: The dosage of bromide and the sodium chloride intake. When bromides are introduced into the body they tend to replace the chloride ion in the blood; decreasing the sodium chloride intake, then, increases the amount of bromide retained in the body.

**Individual susceptibility to bromides:** It is well recognized that there is a wide range of susceptibility to bromides. Diethelm<sup>1</sup> stresses this fact of individual susceptibility and cites cases to illustrate the wide range of dosage which produced symptoms. In one case a dosage of 45 grs. per day for about six weeks resulted in a delirium; while in another patient who had a blood bromide content of 305 mgm. per 100 cc. (dosage unstated) there were no signs of intoxication. Paskind<sup>5</sup> reports a series of 54 epileptics who were given doses of sodium bromide ranging from 27 to 90 grs. per day for periods up to 17 years. He does not mention that any of the patients showed signs of intoxication during the time they were under treatment. Black<sup>6</sup> states that although 60 to 90 grs. of bromide per day has been considered maximum ". . . it has been proven by recent observations that frequently as large doses as 300 grs. a day can be given over a period of a week to 10 days and doses as high as 180-210 grs. daily over a period of two to three weeks



with either no or very slight signs of bromide intoxication."

**Bromide determination:** In cases where bromide intoxication is suspected, a simple qualitative urine test which determines the presence of bromides in the body has been devised.<sup>7</sup> If the presence of bromides in the urine is determined, then a blood bromide estimation furnishes information as to the amount of bromide present and the possibility of the drug's being an etiological factor in the intoxication. The Wuth comparator is sufficiently accurate for this determination.

**Treatment:** The treatment which has been mentioned consists essentially of general eliminative measures, particularly hydrotherapy in the form of continuous tub baths, forcing of fluids, and the administration of sodium chloride. The salt may be given by mouth and in doses which provide 12 to 15 gms. per 24 hour period. In those patients who are unable to take medication by mouth, normal saline may be given by rectal drip or by hypodermoclysis. Strecker and Ebaugh<sup>8</sup> state that in severe cases, with high blood bromide content, there is danger in giving sodium chloride due to the fact that it liberates the bromine from the tissues and increases the severity of the symptoms. They recommend that in such cases the salt be given cautiously.

#### SUMMARY

Three cases of bromide intoxication have been reported; the diagnosis in each case was suggested by the clinical picture and confirmed by determining the bromide content of the blood.

The level of the blood bromide at which toxic symptoms appear, as noted by various writers, ranges from 125 to 200 mgms. per 100 cc.; the importance of individual susceptibility was mentioned.

The chlorides in the blood are replaced by bromides and the latter tend to be retained.

Specific treatment consisting of the administration of sodium chloride resulted in the rapid recovery in the three cases cited here.

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## POSTOPERATIVE INTESTINAL OBSTRUCTION

J. W. HANNETT, M.D.  
Albuquerque, N. M.

(Read before the 21st Annual Meeting of the Medical and Surgical Association of the Southwest at El Paso, Nov. 21-24, 1934.)

Intestinal obstruction following abdominal section may be classified, as a matter of convenience, as early, i.e., occurring within a few days of the operation and as late, i.e., (a large group) occurring months or years later, where the intestine has attached itself to the parietal peritoneum in the site of an old incision or some other remote inflammatory reaction. A few of this latter group may almost be considered a type. It is not uncommon for them to have several operations for obstructions during a period of a few years. Fortunately, this group is small, but frequently is a serious trouble. They should be advised to spend their lives in the vicinity of a hospital in a good surgical neighborhood.

This discussion, however, is concerned only with the obstructions that occur while the patient is still in bed in the hospital following an abdominal operation. The majority of these obstructions occur as a sequence to the more serious surgical procedures. Yet they may, and frequently do, occur following what might be termed simple abdominal routine.

Statistics from the larger and supposedly better manned hospitals reveal that in all intestinal obstructions, both early and late, the average death rate is 60 per cent. Incidentally, these same statistics show that the mortality rate is no better today than it was several years ago. Segregated statistics as to the death rate of early obstruction compared to obstructions from all other causes are not available. It seems reasonable to assume that the death rate would be higher in early post-operative obstruction, considering that the patient's resistance has

been lowered by the original surgical procedure.

Post-operative obstructions following a previous seriously acute and unreasonably delayed surgical condition are to be expected. However, no matter who is guilty of neglect, in the first instance, nor how gloomy the picture may appear to be, the surgeon's responsibility is first, to recognize the surgical condition and then, treat it surgically.

There is little comfort in realizing before one begins that six or seven out of 10 will die, yet one should derive satisfaction in refusing to surrender. The pinched face, sunken eyes, mottled cheeks, clear mentality and small rapid pulse of the late obstruction with his drum-like abdomen is not a cheerful picture. Add to this the doctor with a Levine tube washing feces out of the stomach and a nurse with a hypodermic of morphine and the picture entitled "futility" would be complete. This picture should be wreathed with a long so-called enema tube. The orderly and room maid shout for intestinal drainage, yet the timid surgeon still hopes that his first operation will "stand up." The obituary notice next day may or may not be "double pneumonia."

The foregoing state of facts does not occur as frequently as it did 25 years ago, but it occurs today in outlying communities such as ours.

Delayed diagnoses and operations in early post-operative obstructions are always our own fault. The patients are in bed in the hospital; we are in constant touch with them. We cannot blame the internist, the patient or the family. If we wait for the patient's collapse, we have ourselves to blame. Fecal vomiting without stomach lavage may not occur. With a rising pulse rate, distending abdomen, no results with enemata or the pituitary products, cramp-like pains and the typical facial expressions, valuable time is being lost by further postponement of operation for intestinal drainage.

In a recent post-operative paralytic ileus with fecal vomiting, the patient was prepared for operation—was in fact on the operating table with a spinal anesthetic. The patient's abdomen became noticeably flattened. A rectal tube was passed and my surgical associate who had noticed the altered abdominal contour massaged the abdomen and in a short time the

patient expelled flatus and a large liquid stool. The patient was returned to bed and recovery. The use of spinal anesthesia for relief of pseudo-obstruction or paralytic ileus is always worth a trial. Should it fail, no harm is done and the operation may go forward without delay. The quiet breathing under spinal in operating a distended abdomen is of distinct value. Freedom of exploration is expedited and closure is less difficult. We have used it in extremely sick patients without a fatality that could by any stretch of the imagination be attributed to the anesthetic. Ephedrin or adrenalin is always used and an oxygen tank is always at hand though seldom used. We have seen no contra-indications for spinal anesthesia in cases of intestinal obstruction. It is our anesthetic of choice.

In post-operative obstructions the x-ray is of some diagnostic value—especially the opaque enemata in large bowel obstruction. A barium meal is difficult to expel from the small bowel even in the presence of an ileostomy. Marked distension of the small bowel may be shown in a flat plate without barium and helps in making an earlier diagnosis of beginning obstruction.

The method of attacking a post-operative obstruction presents many difficulties, principally because none of us knows where the obstruction is and whether it is mechanical or paralytic. Should the original field be an infected one the incision, of course, will be made in a clean area, preferably in the upper abdomen. It is always safer to suspect that something has gone wrong near the original incision. If the original wound was clean and there is no evidence of infection it may safely be re-opened and thoroughly explored. If the obstructive point is not discovered the question arises whether we are dealing with an undiscovered mechanical affair or a paralytic ileus. The appearance of the intestinal walls and the patient's general condition must then be our guide in the extent of exploration. The hand and forearm well inside the incision and swept slowly and carefully over all parts of the abdominal cavity will usually locate a mass such as volvulus or a stray band of adhesions. It will also show whether the mesenteric pedicle of the small intestine is distorted or thickened. If the patient's condition is unfavorable and



the condition of the intestine is questionable either a small ileostomy should be performed or a section of the intestine be fixed in the wound and made available for simple puncture a day or two later if indicated. Should the obstruction be a paralytic ileus, opening the abdomen and handling of the gut may stimulate peristalsis; many of these cases will return to normal function with no other procedure. The presence of a safety valve is comforting to the surgeon. The early release of a constricting band or some obstructive intestinal angulation should not require intestinal drainage. Providing the patient's general condition is favorable, the bowel can be identified at some given land mark, perhaps the ileo-cecal junction, and gone over thoroughly in search of the obstructed point. The aid of an ileostomy proximal to the mechanically obstructed segment may necessitate later surgical interference to release the obstruction. It is surprising how often the mechanical obstruction will right itself after the bowel above has assumed its function. It has been my observation that most of our obstructions occur in the presence of a congenitally small omentum.

Torsion of all or a large part of the pedicle of the small intestine may necessitate complete evisceration of the small bowel. We encountered this condition recently in a post-appendectomy in an adult. All of the small intestinal tract was gathered in the arms of an experienced surgical assistant and rotated until the pedicle had assumed its normal contour. The intestinal wall had a doubtful appearance and the mesentery showed signs of trauma. This patient later had multiple abdominal fistulae but finally recovered. We were unable to explain the cause of the mesenteric torsion. This patient, an unusually powerful man, insisted upon taking a general anesthetic. Gas and ether were administered. The anesthetist was a physician of broad experience in anesthesia, and yet the patient never fully relaxed throughout the operation and was particularly violent for a prolonged period after returning to bed. We have no other explanation or clue to this mesenteric torsion. His later operations were performed under spinal and one under avertin and ether, with complete relaxation and no post-operative excitement.

It is a mistake to be satisfied with one surgi-

cal investigation if an obstruction persists or recurs. It should again be approached with caution and respect but with the same cool determination, always bearing in mind that it is a surgical condition and should be met by surgical measures, regardless of its persistence or recurrences. Whether it proves to be an unrelieved mechanical obstruction or paralytic ileus that does not respond to modern palliative measures, the end results will be fatal unless adequate intestinal drainage is established. Many of these patients will die of what is likely an overwhelming toxemia no matter what the procedure may be.

Complications following relief of obstruction are many. Further or repeated obstructions are the gravest. Hiccoughing is not only annoying but may prove fatal. Crushing of both phrenics was resorted to in one of our recent cases. The use of carbon dioxide gas has recently been used. My experience with it has been limited to one case. It should perhaps be used in all cases, especially where inhalation anesthesia has been used. The partially digested skin from the escape of digestive fluids following a high ileostomy is often a real problem. The recent use of kalein is a great advance in the control of this condition, especially when it is combined with constant air suction. The ileostomy tube is of great value for the introduction of fluids and liquid nourishment. Saline and glucose in the vein or subcutaneously will sustain the patient over a long stormy post-operative siege.

In conclusion, it seems reasonable to state that post-operative obstructions carry a greater responsibility to the profession than most surgical undertakings. The patient may be doing very well and could live out a natural lifetime with his stomach ulcer or troublesome chronic appendix. She may be simply inconvenienced by an ovarian cyst or some mild pelvic pathology. If we in good faith advise a major abdominal operation and the patient about his or her duties every day, walks into the hospital and submits, later developing an obstruction of the bowel, then indeed we should bestir ourselves early in that patient's defense. There is nothing monotonous about the care of the post-operative obstruction. It is an unwholesome atmosphere for indecision or surgical cowardice.

# Southwestern Medicine

Printed by THE A. C. TAYLOR PRINTING CO., Phoenix, Arizona  
Published monthly for the Board of Managers of the four constituent societies.

VOL. XIX

MARCH, 1935

No. 3

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## FRANKLIN MARTIN—ABSENT

The Southwest has lost a real friend, a distinguished guest. America and the world have lost a brilliant benefactor, one whose excellent faculties will not soon be found in another.

Franklin Martin is dead. He succumbed from coronary occlusion. His work was interrupted but a few short days before his final adieu to it.

His last caress, figuratively speaking, would have been for his work, we are certain, though his love for his family and friends knew no bounds.

His friends are legion. He enjoyed them. He was a friendly, approachable man. He seemed happiest surrounded by a group of friends.

Dr. Martin spent so many winters in Arizona and was always so gracious to medical men individually and as organizations that large numbers of the profession of the Southwest have grown to have an intimate possessive attitude toward him.

We cannot think of him as dead. His accomplishments are not mere monuments. They make him seem to be alive still at the helm—only just absent.

Far more knowing pens than ours will tell of his life and work; they will need books to hold it all.

While he did great things—many of them—we would say, with Abou Ben Adhem, greater than his love for all these material things was his love for his fellow man.

In penning these few lines the morning after his death, near where lie his mortal remains, we feel as though he, glancing over a shoulder had said, "There, you've said enough."

## COMPULSORY HEALTH INSURANCE BILL.

Before the New York state legislature there is a health insurance bill against which the medical profession is taking a firm stand because they are thoroughly convinced that it will not work in this country and that such a scheme will make matters worse instead of better. These measures are dangerous because upon the face they appeal to every person, who has not given serious thought to the problem, that such a plan would be a great blessing to the workman and a stimulus to an improved national health.

Dr. Arthur J. Bedell, President of the Medical Society of the state of New York, in opposing this bill, said that: Such a law would make patients lie about their conditions in order to get their insurance for which they have paid; they develop a fear of illness; they lose their will to recover; and they are made pretenders and hypochondriacs; the patient who is really ill and is in no wise pretending to be more ill than he really is may not have had his illness fully appreciated because the physician has seen so many pretenders; the bureaucratic apparatus will wedge itself in between the doctors and the patients in a way detrimental to the success of treatment.

Dr. Jacob L. Moreno, director of research, New York State Training School for Girls, and adviser of the Subsistence Homestead Division, Department of the Interior, Washington, D. C., in testifying against the bill said that he had had extensive experience under the operation of such a law in Austria and that, no matter how rosey the picture presented by



health insurance schemes in practice they do not work; they fail to take account of factors in human relation which are indispensable to the practice of the healing art; a physician can not properly treat the large number of patients sent to him, a few perhaps really needing medical attention, and he is forced to develop a mass-handling scheme in order to give attention to every patient. The attention is really only a "quick look, a stock prescription, a pat on the back, and out the door." He said that there are so many corrupting influences from such a law that make it inadvisable to adopt it; it will fail despite the well-meaning altruism of those who sponsor such legislation. He said that information he has received recently from former patients in Austria is that the system is working no better than when he was there and generally is considered a failure.

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#### **SPECIAL SESSION A.M.A. HOUSE OF DELEGATES.**

On February 15 and 16, the A. M. A. delegates met in Chicago. A reference committee reviewing the question of Medical Economics reported that regimentation of the medical profession with lay control of medical practice is certain to be fatal to present high type medical practice and would ultimately lower the quality of medical services available to the American people. All propaganda, legislative and political manipulations leading to state medicine were condemned. The committee, however, reaffirmed the approval of the American Medical Association's attitude in encouraging local medical associations to plan and provide for adequate medical service for all of the people of a community by voluntary rather than compulsory budgeting. The bureau of medical economics of the A.M.A. has data of 150 plans which are undergoing study and trial in various communities in the United States. These data are available to any community. Elsewhere in this issue will be found a report of Arizona's special delegate. See J.A.M.A. March 2, 1935, pp. 747 to 753 for the full transactions of the meeting of the House of Delegates.

#### **THE NEWS COLUMN**

The Editor—lone-handed—can do little toward keeping up an informational news column for the entire territory covered by Southwestern Medicine. If each one of the readers, however, will lay modesty aside and send to the magazine any bit of information about himself which is the least out of the ordinary, the news column can be made most interesting.

The suggestion is made to make the wives or secretaries publicity agents so far as this News Column is concerned.

The value of a news column lies not so much in its present day interest as in its historical worth. Either one of these purposes should be a stimulus to each physician to help fill this column.

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#### **NEUROPSYCHIATRY POST GRADUATE COURSE.**

In the advertising column of this issue will be found an announcement of a post graduate course in "Neuropsychiatry in General Practice." It is planned particularly for men in general practice. We are informed that there will be lectures, case studies, and seminars—an intensive course—extending over five and a half days. The course will be given by the members of the staff of the Menninger Clinic with the assistance of Drs. W. McK. Craig and Henry Woltman of the Mayo Clinic, and Dr. Titus H. Harris of the University of Texas Medical School.

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#### **A HEALTH INSURANCE PROPOSITION**

We recently received an envelope containing a policy-like document and literature with a letter, none of which has been read. Upon the face of one folder, however, we find the words Hospital, Surgery, Medical, Benefit for the entire family. This statement is not in any sense an analysis of the proposition. We merely wish to caution the physicians and surgeons to go slowly in accepting connection with this organization. It may merit a most thorough investigation and may be that long looked for ideal proposition. The impression gathered from the merest glance is that it brings into the picture a lay organization wedged in between the sick individuals and their physicians. If such is the case the probabilities are that this Arizona

Benefit Association, so called, is not the answer to the problem. At any rate whatever is done, let it be done with a united front.

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### **A PLAN TO EVALUATE SEROLOGIC PROCEDURE FOR THE DIAGNOSIS OF SYPHILIS IN THE UNITED STATES.**

Serologic conferences were held recently at Copenhagen and Montevideo. An increased interest in the relative value of serologic tests for the diagnosis of syphilis has developed. At these conferences the test of only one serologist of the United States was presented for consideration. There are a number of excellent serologists in this country, who have described original modifications of the complement-fixation and precipitation tests for syphilis. It is felt that these tests merit consideration.

The United States Public Health Service is cooperating with the American Society of Clinical Pathologists in drafting a plan to evaluate serologic procedure for the diagnosis of syphilis in this country. The plan contemplates the collection of specimens of blood from at least 1,000 individuals and the distribution of comparable specimens to each serologist who has described an original modification of a complement-fixation or precipitation test for the diagnosis of syphilis. The donors of the specimens will be carefully selected so as to measure both the specificity and sensitivity of the serologic procedure. The sending of specimens to workers at considerable distance from the point of collection will be expedited by the use of the most modern transportation facilities, while the delivery of specimens to nearby serologists will be delayed so as to make the delivery time approximate that for those workers at the more remote points.

A committee of five members consisting of two specialists in the field of clinical syphilology, two members of the American Society of Clinical Pathologists, and one officer of the United States Public Health Service will organize the plan of study and, after all laboratory reports have been submitted by participating serologists, will interpret the results on the basis of clinical findings. The collection of the specimens will begin about December 1,

1935, and a number of serologists will be invited to take part in the evaluation scheme.

It is possible that the name of some serologist who has described an original modification of a test for syphilis may have been inadvertently omitted. Any serologist desiring to participate will be extended an invitation upon presentation of suitable proof as to the originality of his modification of a serologic test. A brief description of the plan will also be sent to those workers who may be interested.

Correspondence should be addressed to the Surgeon General, United States Public Health Service, Washington, D. C.

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### **LETTER COLUMN**

We have inaugurated a letter column for the specific purpose of getting expressions on social medicine from our various readers. That is to say, we intend to run this column providing there are letters to fill it, and further, if we do not hear objections from the board of managers.

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### **A PHYSICIAN TECHNICAL DIRECTOR FOR MOTION PICTURE.**

Dr. Samuell M. Marcus, Los Angeles Psychiatrist, is to be the technical director of the production of a Hollywood picture.

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### **NEWS**

Dr. Charles W. Sechrist, Flagstaff, was in St. Joseph's hospital, Phoenix, for treatment during part of February.

Dr. W. P. Sherrill, of Phoenix, was guest speaker at the home hygiene class of the Capitol Parent-Teacher association recently. He discussed "Problems in Preventive Medicine."

Dr. George Truman, Arizona, who has been state superintendent of public health for the past two years under Governor Moeur, has been reappointed for another two year period.

Dr. G. M. Fronske, Flagstaff, is director on the Boy Scout Council.

Dr. Howe Eller leaves his position as County Health Officer of Bernalillo County, N. M., on March 25th to assume a similar position in



Virginia, together with holding the chair of Public Health at the University of Virginia.

Dr. M. G. Wright, Winslow, spent a week in the latter part of February in Phoenix. Dr. Wright has a private hospital in Winslow. His wife is a nurse and reports indicate that they are doing excellent work.

Dr. Trevor G. Browne of the Phoenix Clinic has been called to Panama to bring a patient from there to Phoenix.

Dr. F. S. Spearman, formerly in the Indian service in Arizona is now with Co. 968 CCC Camp F., 115, at Lucile, Idaho. His oldest son, Maurice, graduated from Baylor Medical and has been interning in El Paso where he is to become associated with a well established physician.

Dr. H. S. Denniger recently of the United States Army where he served for two and a half years resigned January 9, of this year. He is now located in Peoria, Arizona. The doctor is a graduate of Rush Medical College in the class of '31. He practiced one year in Chicago after graduation where he was the attending physician of the Central free dispensary. He is married.

Dr. Joseph Bank, Assistant Professor of Gastroenterology, University of Pennsylvania, talked before the Maricopa County Medical Society Monday evening, March 4, 1935. Appearing on the same program was Dr. W. B. Carrell, Dallas, President, Pan-American Medical Congress.

## Tentative Program for the Meeting of the Arizona State Medical Association, April 22-25.

1. Dr. H. L. Franklin (Phoenix)  
Hereditary Optic-nerve Atrophy.
2. Dr. A. K. Duncan (Douglas)  
Pre-sacral Ganglionectomy in Dysmenorrhea.
3. Dr. Frank S. Dolley (Guest)—Los Angeles.  
Indications for Lobectomy.

### FRIDAY, APRIL 26, 1935

1. Dr. J. C. Riggins (Tucson)  
Pneumothorax Treatment in Lobar Pneumonia.
2. Dr. George Thorngate (Phoenix)  
Silicosis.
3. Dr. Samuel H. Watson (Tucson)  
Curability of Tuberculosis of the Bowel.
4. Dr. Robert Flinn (Phoenix)  
The Medical Treatment of Gall Bladder Disease.

### SATURDAY, APRIL 27, 1935.

1. Dr. Walter Brazie (Kingman)  
Insurance Examinations.
2. Dr. David M. Davis (Phoenix) and  
Dr. John W. Pennington (Phoenix)  
Polycystic Kidney with Presentation of Cases.

One afternoon will be devoted to a symposium on Industrial Medicine and another to Medical Economics.

## PUBLIC HEALTH NOTES

By

J. ROSSLYN EARP, Dr. P. H., Director  
New Mexico State Bureau of Public Health

**Relapsing Fever** was discussed with due reference to the literature in former notes<sup>1</sup>. At that time it was observed that relapsing fever had been reported from all around us. The first case believed to have originated in New Mexico has just been reported. The disease was diagnosed in Los Angeles but the circumstances are such that it must almost certainly have been contracted in this state. We thank the California State Health Department for the notification. The patient had hunted on various occasions in the Pecos valley and had handled jackrabbits and small rodents. Ticks were noted but no history of his having been bitten by an insect was obtained. He became ill two days after leaving New Mexico.

**Tuberculosis in Africa:** Subscribers to *Tubercle* received with the issue for January a supplement of 87 pages splendidly illustrated entitled "Studies of Tuberculosis Among African Natives."—reports to the British Medical Research Council edited by Professor S. Lyle Cummins. Parallels can be found in Africa for the tubercularisation of Indians and Spanish-Americans in the southwest. While tuberculous infection is widely distributed in Africa, its intensity varies directly with the opportunities of outside contact and inversely with tribal isolation. In districts which receive the human wreckage from the Rand mines surveys with the tuberculin test give as high as 94.7 per cent positive reactors over age 20. In the less exposed Dinka population just one-third are found infected. It is clearly shown that a marked hypersensitivity to the tuberculin test implies for the African adult, a liability to disease rather than any promise of resistance against it. A hopeful observation is that the disease, when contracted under the familiar home conditions of native life, does not show the same tendency to rapid generalization and progressive spread as that observed in those natives that have been in military or industrial occupations.

**British Osteopathy:** The English medical journals are discussing legal recognition of osteopathy in Great Britain. The British Medical Association has prepared a memorandum<sup>2</sup> in which they wisely foresee that if osteopathy is registered as a special healing art the door will be opened wide to any number of healing cults. New Mexico has already admitted osteopaths and chiropractors. As these notes are written the naturopaths, for the second time, are loudly demanding admission. The British Medical Association is right in standing for the principle that anyone may practice healing as long as he does not claim to be a registered physician and that there shall be just one minimum standard of education in the medical sciences which shall lead to registration as a medical practitioner.

The New Mexico Public Health Association will hold its annual meeting in Santa Fé, April 30 to May 1. The meeting will be held in association with the Southwestern Section A. A. S. All readers of *Southwestern Medicine* are cordially invited to be present.

### REFERENCES

1. *Southwestern Medicine* 16: 429, October 1932.
2. *The Lancet*: 95 and 111, Jan. 12, 1935.

## El Paso County Medical Society

(Reported by Dr. L. O. Dutton, Secy.)

February 11, 1935.

Meeting was called to order at 7:30 P.M. by Dr. B. F. Stevens. Minutes of previous meeting were read and approved.

Dr. J. W. Cathcart presented three cases showing slides and the patients. The conditions were: Polycystic osteitis fibrosa; neurogenic sarcoma of orbit of sixteen years duration, and malignancy of neck—nature undetermined. All are under treatment by x-ray. Discussed by Dr. Swope.

Dr. L. O. Dutton read a paper "Some Remarks on Clinical Pathology." Discussed by Dr. Mann of Silver City, N. M.

Dr. R. B. Homan explained the purpose of the health roundup to be held Feb. 12, 13 and 14, and announced the medical staff for each night of the roundup.

Dr. Bloyce Britton cited the difficulty of securing good programs. Discussion and suggestions were offered by Drs. Leslie Smith, Prentiss, Dutton, R. B. Homan, J. W. Laws, Cathcart, Cummins and Barrett.

Dr. Will Rogers reported for the Auditing Committee, saying it was impossible to adequately audit the finances of the society without a large amount of work.

Dr. Laws moved to accept Dr. Smith's financial report; seconded and passed.

Dr. Stevens thanked Dr. Smith for his faithful services during his tenure of office as secretary.

Dr. Russell Holt's application for membership was accepted after being favorably reported by the Board of Censors.

Dr. Garrett spoke of lack of enforcement of the city ordinance against spitting on sidewalks.

Dr. Barrett reported for the Board of Censors on the case of "Claudia Huff," who has filed complaint against Dr. H. F. Miller and a person known as "The Hermit." The details of the case are in the files of the Board of Censors. After some discussion the matter was left with the Board of Censors for further investigation to be reported at the next meeting.

The applications for membership of Dr. Gerald Houghton Jordan, Dr. Erich Spier were read, and sent to the Board of Censors. A communication from the Texas Human Betterment Foundation relative to legislation concerning sterilization of the unfit was referred to the Legislative Committee.

Action of the Executive Committee relative to supporting an ordinance concerning sale of contraceptives was reported.

A communication from the A. M. A. regarding the summer roundup of school children was sent to Committee on Public Health.

Meeting adjourned at 9:30 P. M.

## COMMITTEE REPORTS

### TO ARIZONA STATE MEDICAL ASSOCIATION

#### REPORT OF COMMITTEE ON NATIONAL LEGISLATION

**Social Economics:** More important legislation is before Congress this year relative to the Medical Profession than at any other time in our history. Most of the important bills relate to SOCIAL SECURITY.

Four bills propose to carry into effect the Administration's social security program as developed to date.

S. 1130 by Senator Wagner, New York, H.R.

4120 by Representative Doughton, North Carolina, H.R. 4142 by Representative Lewis, Maryland, H. R. 4539 by Representative Mead, New York, would authorize federal subsidies with a Children's Bureau in the Department of Labor, supervise state activities relating to maternal and infant welfare. Federal subsidies would also be authorized to provide for the development of state and local health work under the supervision of the United States Public Health Service. The bills also provide for care of crippled children, for child welfare and for old age and unemployment insurance.

Other bills would direct the Secretary of Labor to provide for the immediate establishment of social insurance to provide for compensation for all workers and farmers who are unable to work because of sickness and old age, maternity, industrial injury, or any other disability. Four bills of this nature are in Committee—H.R. 2827; H.R. 2589; H.R. 10; H.R. 5497.

Senate Resolution 28 by Senator Black, Alabama, would direct the Senate Committee on Education and Labor to investigate fully the best and most effective kind of federal legislation to provide a system of health insurance throughout the United States.

A bill introduced by Senator Moore, New Jersey—1132—would authorize the Secretary of the Treasury to insure loans made by banks and other financial institutions, for the purpose of financing payments for medical and dental services.

A bill, introduced by Representative Dunn of Pennsylvania—H.R. 5549—would direct the Secretary of Labor to provide for the immediate establishment of a system of health insurance for the purpose of providing full medical and nursing care, including hospitalization, medication, laboratory tests, and treatment, as well as special services.

The President's Committee on Economic Security has at this time under consideration the question of health insurance and will, it is reported, make a recommendation to the President in the near future. On the basis of this recommendation, the President may convey his views to Congress.

All of these bills are still in committee.

In the first set of bills federal subsidies as a rule must be met by the states, except a state could not match and "exceptional circumstances can be shown." In the child welfare services, each state is to be given \$10,000 and the rest applied for will have to be matched. Federal Control must be, through its Children's Bureau, over the local states' bureaus. Subsidies for General Health Purposes are given on, the basis of needs and, notification of the Treasurer of the United States.

**Veteran's Legislation:** Four bills are pending proposing to re-enact all laws granting benefits to veterans that were repealed by the Act of March 20th, 1933.

A bill introduced by Representative Reese, Tennessee—H.R. 174—would authorize the admission of any veteran, not dishonorably discharged, to any Veteran's Administration Hospital, on payment of a per diem fee in an amount equal to the average cost of hospitalization per patient day at the hospital for the previous month.

Other bills propose to establish additional hospitals, to provide medical and hospital services to persons not entitled thereto under any existing law relating to veterans and to provide an increase in pensions for veterans. There is no pending legislation, however proposing pensions for contract surgeons of the Spanish-American War to place them on a parity with contract nurses.



**Food and Drug Legislation:** Three bills are pending proposing to prevent the manufacture, shipment and sale of adulterated or misbranded, foods, drugs and cosmetics, and to prevent their false advertisement. The bills, generally, would revise the existing federal food and drugs act, extending its provisions to include cosmetics, and to regulate the advertising of foods, drugs and cosmetics.

**Anti-Vivisection Legislation:** A bill introduced by Senator Frazier, North Dakota—S. 1737—proposes to prohibit experiments and operations on a living dog in the District of Columbia for any purpose other than the healing or curing of the dog.

**Birth Control Legislation:** Several bills are pending proposing to liberalize existing federal laws relating to dissemination of information concerning the prevention of conception, and of articles, instruments, substances, drugs, and medicines designed, adapted or intended for the prevention of conception.

**Other Legislation:** A bill, introduced by Senator Hatch, New Mexico—S. 1615—proposes to prohibit the shipment and transportation in interstate or foreign commerce of cannabis and its derivatives and compounds.

Another bill, H.R., 1425, introduced by Representative Woodruff, Mich., proposes to authorize the withdrawal of alcohol, tax free, for the use of any clinic operated for charity and not for profit, including the use in the compounding of bona fide medicine for treatment outside of such clinics of patients thereof, but not for sale.

None of these bills has been reported out of committee as of this date.

Regarding proposed legislation especially in relation to the Social Securities program, on recommendation of Dr. Harbridee and the legislative branch of the A.M.A., a telegram was sent to our legislators as follows: "The ten points outlined at the special session of the House of Delegates for the consideration of legislation in Cleveland and Chicago is the gist of the answer of organized medicine to the above proposed legislation."

Respectfully submitted,

R. J. Stroud, Chairman.

## REPORT OF COMMITTEE ON PUBLIC HEALTH AND WELFARE

The most important piece of work in which we were engaged occurred last fall. For six weeks prior to the general election in November, we organized an intensive campaign to combat an Initiative placed upon the ballot by the Naturopaths of this State. This Initiative, if it had received a favorable vote, would have placed these practitioners on practically the same basis as are the regularly licensed physicians, in the rights, privileges and scope of their practice.

Cooperating with the Committee in this campaign were the Officers and Members of the Public Health League. The detailed work was handled through a centrally located office in Phoenix, with a well qualified and experienced publicity manager in charge.

I shall not attempt a complete resume of all phases of this campaign, but am attaching a detailed summary hereto. Suffice to say, the cooperative effort of most of the members of our various County Societies was gratifying, and highly appreciated by this Committee. Our Committee is also deeply indebted to members of other Professional Groups, to various Club Members throughout the state, and to the excellent support received from many newspapers in their editorial columns.

This Committee at the present time is active in

various pieces of Legislation. It is attempting to aid the State Board of Health, and the Industrial Commission in getting several bills enacted. The uniform Narcotic Code is the only one of our acts passed by the Legislature to date. We have within the past few days submitted an Act to amend several sections of the present Medical Practice Act of this State; two of the amendments at least are important for putting "teeth" in the Practice Act.

Other activities during the past year in relation to Public Health matters have been of various types. We have cooperated with Chambers of Commerce and different clubs in arranging public health demonstrations, talks and programs; we assisted with some of the material used in the health demonstrations, talks and programs; we general have tried to be of assistance in all health matters when called upon.

**Recommendations:** The Committee has had requests from various professional individuals, and lay people, to assist in forming a permanent Public Health League such as exists in other States, and we have endorsed this progressive step. It is natural that the professions which deal with and foster the scientific spirit should encounter unusual opposition, in view of the fact that numerous societies and organizations constantly oppose scientific investigation. These pseudo-cults are constantly arousing hostile public sentiment, and some of their bills are or will be finding their way into our Legislature. Adverse medical legislation will find on defense mechanism a successfully operated Public Health League. Such a League would be of unlimited value in helping to maintain proper relationship between doctor and patient; it can oppose all objectionable forms of socialized medicine; it can encourage enactment of laws promoting greater usefulness of medicine, surgery, dentistry and nursing and can protect the unsuspecting from quackery, nostrums and fraudulent advertisements. It can propose and make intensive studies of social economics, and legal subjects pertaining to the preservation of health and the care of the sick and injured.

Respectfully submitted,

J. D. Hamer, M. D., Chairman.

## REPORT OF INDUSTRIAL RELATIONS COMMITTEE OF THE ARIZONA STATE MEDICAL ASSOCIATION.

At the annual meeting of the Arizona State Medical Association held at Prescott, in June, of last year, the following resolution was adopted:

"Believing the medical care and physical restoration of workmen injured in the course of employment to be the essential, underlying principle of workmen's compensation, and that the physical and functional evaluation of temporary and permanent disabilities of injured workmen can be adequately determined only by members of the medical profession; and further believing that the responsibility for such medical care and restoration of injured workmen, together with the physical and functional evaluation of their injuries, rests squarely upon the shoulders of the medical profession of the state; and further believing that by means of an active and close cooperation of the State Medical Association with the Arizona Industrial Commission, the intents and purposes of workmen's compensation can be carried out more efficiently and more economically and more harmoniously; therefore, be it

"Resolved by the Arizona State Medical Association that a permanent Industrial Relations Committee of five of its members be established; that said Committee be known as the Industrial Relations Committee of the Arizona State Medical Association; that the President of the State Medi-

cal Association each year automatically becomes a member and chairman of this committee, and that the other four members of said committee be appointed by the President of the State Medical Association within a period of 30 days following the adoption of this resolution, and that said members so appointed serve for a period of one year or until their successors have been appointed; that said Committee be representative of the medical profession of the State, and be fully authorized to represent the membership of the State Medical Association in all questions and decisions relative to medical relations under workmen's compensation; that said Committee be further authorized to enter into any arrangements or agreements with the Industrial Commission of Arizona which, in the judgment of said Committee, may aid in carrying out its purposes; that said Committee keep a record of its activities and make annual reports to the Arizona State Medical Association, and be it further

"Resolved that the Arizona State Medical Association, through its Secretary, extend greetings to the Arizona Industrial Commission, enclosing a copy of this resolution, together with the names of the members of the Committee so appointed, and further to advise the Industrial Commission of the desire of the physicians and surgeons of the state to cooperate with said Commission insofar as their special knowledge and experience may be of value to the Commission in administering the Workmen's Compensation Law."

As so instructed, the President appointed the following: Dr. Robert Ferguson, of Bisbee, Dr. A. C. Carlson, of Jerome, Dr. H. D. Kennedy, of Globe, and Dr. E. Payne Palmer, of Phoenix, who with himself form the Committee.

The first meeting of the committee took place on the first day of July, 1934. In addition to the members appointed, Dr. D. F. Harbridge, secretary of the Arizona State Medical Association, and Dr. R. F. Palmer, Medical Referee for the Industrial Commission were present. The Committee proceeded to its organization. Dr. Meade Clyne was made chairman, and Dr. W. Warner Watkins, secretary ex-officio. After a full discussion, the general purposes of this Committee were determined to be as follows:

(1). To represent organized medicine in its various relations with the Industrial Commission.

(2). To evaluate professional fees appropriate to standardized classes of industrial injuries and fees appropriate to individual cases which because of complexities cannot be standardized under a fee schedule.

(3). To use its influence in promoting and elevating the practice of industrial surgery in the state, and in cementing a closer relationship between the industrial surgeons and the Industrial Commission, by preparing for publication in the Arizona Industrial Commission Bulletin full details of the proceedings, decisions, and conclusions of this Committee.

To act in an advisory judicial capacity, where it does not violate medical ethics, in cases of misunderstanding and dispute between the Industrial Commission and a surgeon provided that the request for such consideration is made in writing by either, or both, the Industrial Commission and the attending surgeon.

It was proposed that monthly meetings be held throughout the year, and this plan has been carried out.

At its second meeting on July 29th, with the Industrial Commission all felt that the fee schedule then in operation was inadequate and should be changed; after a full discussion, the consensus

of opinion was that the old schedule as published in 1929 was more in conformity with the usual fees charged for medical services in the state, and was therefore generally more satisfactory.

The Industrial Commission then adopted the old schedule and it became effective after the 15th day of August, 1934.

A protest was filed against a ruling that had been made by the Industrial Commission: That the x-ray films taken in connection with Industrial cases be returned to the Industrial Commission where they could be permanently filed. The doctor making the protest appeared before the Industrial Relations Committee and Industrial Commission, and after a discussion in which it was brought out: That industrial cases never reach finality; that they return for rehearings and requests to reopen cases many months, and even years, after the original injury, and that it is often necessary in the evaluating of these old injuries to have the old, original films. The discussion also brought out the fact that the films should be available to the surgeon in case of malpractice suits; and for any other reason that the original surgeon might care to consult them. The matter was disposed of by a decision of the Committee approving the ruling of the Commission that at least the first and final films in each case be furnished the Commission for its permanent files—except that in the case of self raters where permanent x-ray files are maintained. It is understood that the films filed by the Industrial Commission would be at all times available to the surgeon for study of the case—said films to be returned to the Commission files when the purpose for which they were borrowed has been served. The films of self raters are to be available to the Commission under the same conditions.

Differences existing between the Industrial Commission and eight different doctors throughout the State have been adjusted amicably. Usually the subject of the differences was in the matter of fees.

In regard to the settlement of differences that might exist, the Committee has adopted the following resolutions to guide them in their actions in these instances:

(1). That in all cases of controversy between a doctor and the Commission, either as to liability of the Commission or as to charges made by the doctor for services, the doctor interested should be notified of the questions raised, and informed that the matter is to be taken up at the next regular meeting of the Industrial Relations Committee, so that he can either be present in person or present in writing such evidence as he may have in support of his case.

(2). That in all matters where this Committee takes definite action on any argument between a doctor and the Industrial Commission, notice of such action including the reasons therefor, shall be sent by this committee to the doctor concerned.

In many instances the Industrial Commission has asked the Committee for its opinion as to the compensability of conditions arising out of employment—an example of which, is the matter of a workman who developed a prolapsed hemorrhoid while straining at work and this hemorrhoid required surgical treatment. The Committee was of the opinion that such a condition comes within the bounds of "an untoward event, arising out of and in the course of employment," and is therefore compensable.

The Industrial Commission requested the Committee to give an opinion as to whether or not a Wassermann test should be allowed routinely on Industrial injuries. In the discussion some of the



members were of the opinion that such a practice would be a good one but that it is not necessary as a routine and when thought advisable, permission should be obtained from the Commission.

The Industrial Commission presented, at Dr. Watkin's request, matters relative to charges for x-ray examinations. Dr. Watkins stated that in outlining the fee schedule at the time of the organization of the Industrial Commission, this schedule was based upon an understanding that the x-ray examination is a consultation and the charge was made nor for any certain number of films nor for a particular type of examination, but was based upon the assumption that the radiologist would take a sufficient number of films of the proper character to enable him to interpret the findings. On this basis extra charges for stereoscopic films was not contemplated. A motion was finally made that the consensus of opinion of the Committee is that stereoscopic films should not be charged for in excess of the regular fee schedule. This motion was carried.

There was some discussion about examinations before and after reduction of fractures. No action was taken, though it was the consensus of opinion that a charge for two examinations should be allowed—an x-ray examination before reduction and one after.

The Industrial Commission presented the question as to whether the application of heat by means of Thermo-Electric lamps or so-called Infra-Red lamps were entitled to be charged for as extra treatments by hospitals. It was the consensus of the opinion of the Committee that such treatments should be part of the regular hospital care without extra charges for them.

A condition presented was with regard to the activities of Accident Insurance Companies and the use by employers of ordinary accident policies in place of Workmen's Compensation Insurance. The issue was raised by the request of the Gila County Medical Society requesting the Industrial Relations Committee to lend their assistance in remedying the injustice done the workmen, hospitals and attending physicians under this plan of insurance. After considerable discussion of this matter the following resolution was introduced and passed for presentation to the Industrial Commission.

**Resolution:** It has come to the attention of the Industrial Relations Committee of the Arizona State Medical Association that many workmen injured in the course of employment who are not insured under Workmen's Compensation are inadequately provided for in respect to medical and hospital care.

Therefore, this Committee respectfully calls the matter to the attention of the Industrial Commission and requests that consideration be given means of providing such workmen all the benefits of Workmen's Compensation.

In a discussion with the Industrial Commission in regard to this resolution it developed that Workmen's Compensation is supposed to be compulsory but in its actual operation there are flaws. As a matter of practical application the Commission is not responsible unless the employer elects to carry Compensation insurance. If he fails to insure with the Industrial Commission or with some private insurer, no definite compulsion is used to force him to protect his workmen. Mr. Babbitt, the attorney for the Commission, stated that the law should be amended, and that an amendment was in the course of being drafted to cover such conditions. After discussion, the Committee was unanimous in the suggestion that the Legislative

or Public Welfare Committee of the State Association cooperate with the Commission in seeking legislative improvement of the Workmen's Compensation Act.

They report that Dr. Hamer, who is the chairman of the Legislative Committee did cooperate with Mr. Babbitt in the formation of an amendment which was introduced in the Legislature.

It is the feeling of the Industrial Relations Committee, that a definite advance has been made in establishing a closer and more friendly and understanding relationship between the doctors in the state, and the Arizona Industrial Commission, and wishes to convey its thanks to the members of the Industrial Commission for the friendly cooperative spirit.

Respectfully submitted,  
Meade, Clyne, Chairman.

## REPORT OF EXTRA SESSION OF HOUSE OF DELEGATES OF THE AMERICAN MEDICAL ASSOCIATION AT CHI- CAGO, ILL., FEB. 15th and 16th, 1935.

by

W. O. SWEET, M. D.

(Special Delegate from Arizona)

The house was called to order at 10 A. M. Friday by the regularly elected speaker, who at once called for a report by the Credentials Committee. They were not ready. The Sergeant-at-Arms and two assistants were sent out, to the great amusement of the Delegates, to force the chairman to give an incomplete list of those bearing credentials as alternates and who had not attended the Cleveland meeting. Your alternate delegate was on this list. The roll was called and the house voted to seat them. This provided a quorum.

After routine preliminary reports of Secretary Olin West, the House on recommendation from the floor suggested by the chairman, went into executive session, and all but regularly seated delegates were requested to leave. A motion was passed allowing all members of American Medical Association Boards, Deans of Medical Schools and Army, Navy and U.S.P.H. officers to remain. These men could discuss but not vote.

A committee was then appointed by the chairman to accept and thrash out motions.

The economic situation was responsible for this call. The Board of Trustees had one of their members read a carefully prepared report which should be in the hands of every state and county society and should be read before the county societies.

The speaker then called for general discussion. A delegate from the floor moved that the six important questions presented by the Trustees be discussed in order and motions made and voted on. This was voted down and the orators began to get their systems clear of much rubbish, which served the purpose of getting up enthusiasm.

A second vote was called and these six questions were discussed and voted on. Various motions were offered and sent to the Reference Committee.

Saturday morning, the Reference Committee brought in a report and it was put before the house for discussion. Dr. Leeland was asked to talk about the experience of the A.M.A. with Perkins and other members of the Technical Advisory Board to the President. This talk was more thorough than any given.

The President of the American Medical Associa-

tion, Dr. Walter L. Bierring, spoke. He was very hoarse from acute laryngitis, but said they were told by this board that they did not "know a darned thing about what they were talking about."

There appeared at this time, a change in the attitude of the delegates. I was unable to put my finger on the sore spot, but during recess, I circulated among the delegates to figure out party politics. By making various remarks more or less calculated to get under their skins, it seemed to me that "Party Politics" was consciously or unconsciously playing a part in the actions of the delegates. No one admitted it; but it was there just the same.

McCormick of Kentucky made a long talk. He told of conditions in Washington, and declared openly that the objectionable section in the Wagner Bill was beaten. Olin West seemed skeptical. McCormick praised the President and said that it

would take six more years for him to clean up the mess. Bedell of New York, like McCormick, was a mighty orator but said nothing important. He amused some and made others angry or disgusted. The better class of Republicans naturally resented his remark that "two more years of Roosevelt was plenty." The speaker should have thrown them both out.

The consensus of opinion of those in position to know (Olin West, Bierring, Warnshuis, Woodward, Leeland, Fishbien, and others on the Board of Trustees) was that the President is favorable to organized medicine. That he is opposed to any attempt to regiment so old and honorable a profession as the medical profession. However, there is to be considered this important phase: Dr. West pointed out that other advisers have the ear of the President. He is not a free agent and may have to yield to pressure. Dr. Woodward stated that the President is not committed and that Congress is not sold on the idea, that the Wagner Bill is too expensive and the clause requiring each state to match the Federal aid would break the states.

The thought occurs at this time that the gradual confiscation of actual wealth must inevitably destroy our form of government, and certainly our system of economics.

Various plans were discussed. There are now about 150 different plans in operation. King of Washington, of course, is enthusiastic over the Washington plan. MacAtte says the D. C. plan is satisfactory there. Some criticism was heard around the lobby, that the deduction of \$2.00 per month was high handed; but the defense says that otherwise this class of labor will pay nothing. When sick, they are destitute and pay nothing. The Alameda, California, plan is favored.

Wayne County Medical Society has a workable plan for Detroit.

Upton of New York said that there are accusations that the Trustees do not represent the sentiment of the profession. Mund of Illinois says that the Trustees are the only group competent to handle the situation.

Bunce spoke for the Trustees and said he for one did not want the responsibility.

Dr. Apt said that the health insurance situation was desperate. Others spoke against it.

Dr. Mango of Massachusetts stated that they had \$137,000,000 in hospitals in Massachusetts and last year treated 700,000 patients, 300,000 of whom did not pay. Massachusetts, in his estimation, furnishes adequate medical attention.

Everything in the House of Delegates was rosy when Reed of Oklahoma, President of the state society and a member of the state senate, stated by wire that the A. M. A. would be disregarded by his state. He told their delegates that they should "go it" alone and pay no attention to the rest of the country.

Roberts in Georgia wants relief for doctors as well as others.

Shirley suggested that eleven ex-president of the A. M. A., "all orators, go to Washington and orate us out." Very good!!

The profession in New Jersey is not united and \$200,000 distributed by F. E. R. A. has whetted appetites for more and they like federal as well as other money.

Sanders gave the well known figures that prevail: England pays \$2.03 per year per person to each physician, \$1.65 in many other countries, including Germany. Follensby of the Judicial Council stated that the Committee appointed by Hoover in 1927 to study costs of medical care had their plans written out before they ever met.

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etc., were bitterly condemned by many delegates. Follansby also called attention to the grabbing of fees by relief doctors who continued to "yell" for more. He seems to have a very correct and fair attitude towards doctors in spite of his apparent knowledge of their shortcomings.

MacAtte stated that community chest abuses of doctors' charity should cease, and all charity cases closely investigated.

Many short statements were made at this time, some good and some bad.

The trend of feeling was rapidly being swung to the adoption of a rewritten report. Carey of Texas favors a mass meeting and much brass band. Others according to their tastes, wish to stalk their game in high places. My impression was that 70 per cent of the profession was represented in the House and at least 75 per cent of the delegates will make attempts to get action on Congressmen and Senators by writing them. Some want to carry the war into the homes and stir up the people.

## BOOK REVIEWS

**TUBERCULOSIS—A Book for the Patient;** by Fred G. Holmes, M.D.; Director of the National Tuberculosis Association; Chief of Staff, Good Samaritan Hospital, Phoenix; President-Elect, Arizona State Medical Society; Fellow of the American College of Physicians; D. Appleton-Century Company, Inc.; New York; London; 1935.

Dr. Holmes has not added "just another book" to the considerable number written for the tuberculous patients. This book is written entirely from the viewpoint of the patient who is interested in what is wrong with him and what to do about it. While formerly the physicians generally believed that it was best that patients make no effort to understand their maladies, it is now known that in many conditions it is wise to educate them upon their diseases in order that they may better cooperate with their physicians. Dr. Holmes's book is entirely with the thought that the patient with tuberculosis of the lungs should have an understanding of it. It explains to the patient, in his own language to a great extent, his disease and what should be done for him.

The book is divided into two parts with 25 and 14 chapters respectively. Part one is devoted to the general study of the disease and the ordinary methods of treatment and problems connected with these subjects. Among the titles of the chapters in the first part are Tubercle Bacillus, Indifference and Ignorance Versus Knowledge, Early Tuberculosis, The First Symptoms, Choice of Physician, Planning the Treatment, Rest, Air and Sun Baths, Marriage, Patent Medicines, etc. Part two discusses various special features such as Mechanics to the Aid of Nature, The Air Splint, Technique of Artificial Pneumothorax, Cases Suitable for Pneumothorax, Disadvantages and Complications of Pneumothorax, Intrapleural Pneumolysis (Adhesion Severing), Thoracoplasty, etc.

We predict the need for an early reprinting because of popularity.

**MEDICAL CLINICS OF NORTH AMERICA:** issued serially, one number every other month; Volume 18, Number three; New York Number; November, 1934; Octavo of 301 pages with 17 illustrations; per clinic year July 1934 to May 1935, paper, \$12.00, cloth, \$16.00 net; Philadelphia and London; W. B. Saunders Company; 1934.

This volume begins a radical change in policy in the medical clinics of North America. The plan is to have symposia upon the every day problems of

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—Proc. Soc. Exp. Biol. and Med., 1934,  
32, 241-245.



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\* \* Two packages of Philip Morris English Blend cigarettes. ☐

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the general practitioner. Difficult clinical aspects of a condition such as lymphadenopathy, as appears in this issue, rather than a general discussion of them, will be the method of presentation of the subjects.

Pages 633 to 726 are devoted to lymphadenopathies. The very latest word on all phases of this subject will be found. This volume also contains other subjects, such as the failing heart and its treatment, the heart in acute rheumatic fever and similar conditions, the relation of the thyroid gland to Graves disease, pneumonia in infants and children, migraine, the use of a liberal carbohydrate diet in the treatment of diabetes, the treatment of intestinal amebiasis, the antitoxin treatment in erysipelas, etc.

The clinics are given by such well known men as Harlow Brooks, George H. Hyslop, Walter A. Bastedo, Harold J. Stewart, and others.

It would appear that during the course of a year one would have the very latest information on a wide variety of subjects by subscribing to these volumes.

**PHYSICAL DIAGNOSIS:** by Warren P. Elmer, B.S., M.D., Associate Professor of Clinical Medicine, Washington University School of Medicine; Assistant Physician to Barnes Hospital; Physician-in-Charge, Missouri Pacific Hospital; Consulting Physician to Jewish Hospital, St. Louis, and St. Louis County Hospital; and W. D. Rose, M.D., Late Associate Professor of Medicine in the University of Arkansas, Little Rock, Arkansas; Seventh Edition; The C. V. Mosby Company; 1935; St. Louis, Mo.; Price, \$8.00.

A reliable up-to-date book of physical diagnosis should be on every physician's desk. Drs. Elmer and Rose are bringing out the seventh edition of the book *Physical Diagnosis*. In their preface they state that they have made use of criticism embodied in reviews of previous editions. New material has been added in various sections. The chapters on electrocardiography have been completely revised.

The chapter on radiology in physical diagnosis is contributed by Dr. Sherwood Moore. There are several chapters on the heart contributed by Dr. Drew Luten.

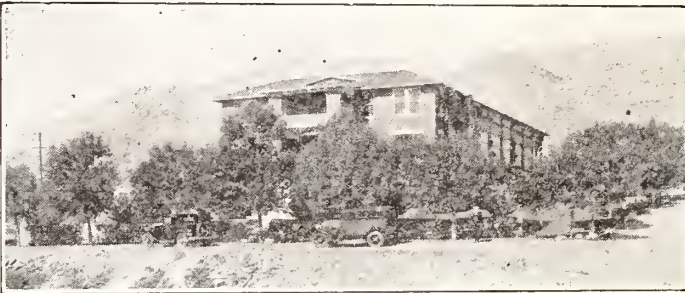
This work would seem to be of the highest value on physical diagnosis.

**ONE HUNDRED AND FIFTY YEARS OF PUBLISHING;** 1785-1935; Philadelphia; Lea & Febiger, 1935.

The volume published in 1885 under the title of *One Hundred Years of Publishing* is revised and amplified under the title of *One Hundred and Fifty Years of Publishing*.

This is a story of the development and accomplishments of Lea and Febiger. On page 37 we read that the house has always recognized the moral responsibilities attached to its business and that it has never sought gain by pandering public taste.

We shall certainly not be criticized by any reader for saying that these high principles probably have been responsible for the survival and success of the firm.



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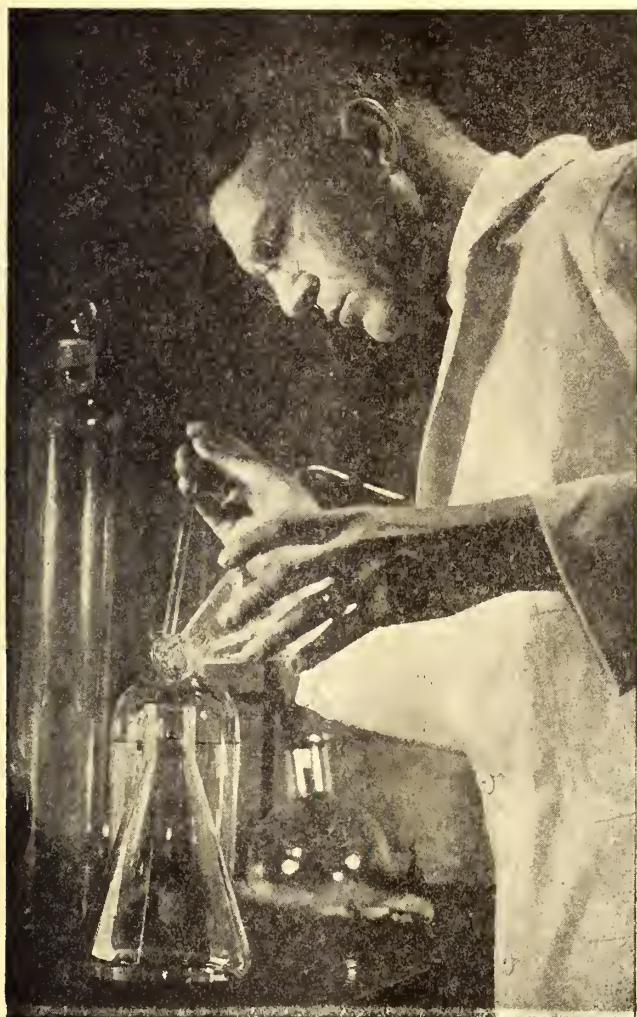
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Superintendent





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APRIL, 1935

No. 4

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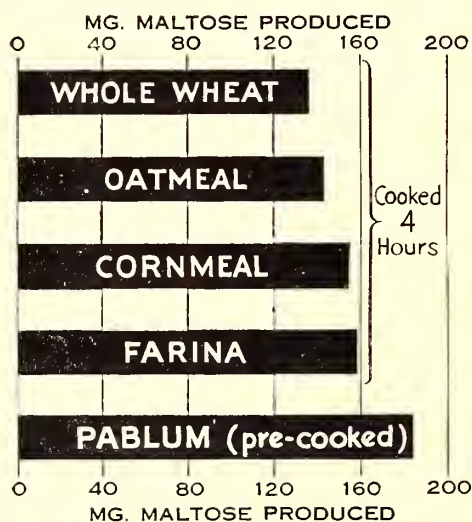
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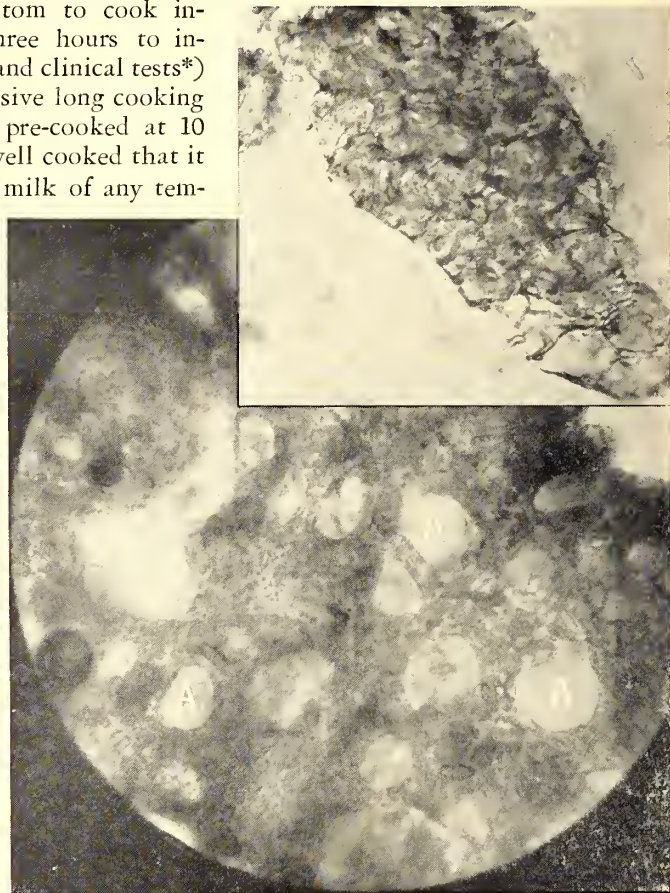
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140 X, STAINED

(INSET) 290 X, STAINED

*Large photomicrograph:* Pablum mixed with cold water—portion of large flake. Pablum flakes are honeycombed with “pores” or air-spaces (note light areas A). This porosity permits ready absorption of digestive fluids by the entire flake. No starch granules are visible—they have been completely ruptured.

*Inset:* Farina cooked 1/2 hour—clump of cereal composed of unruptured starch granules. Note density of clump and lack of porosity. Many starch granules, such as are present in raw cereal, remain unchanged in form.

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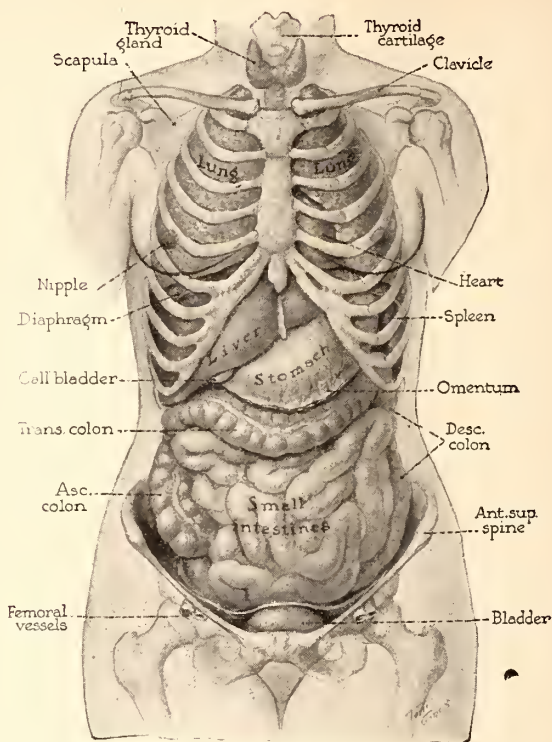
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VOL. XIX.

APRIL, 1935

No. 4

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SINGLE COPIES 25 CENTS

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Acceptance for mailing at special rate of postage provided for in section 1103, Act of October 3, 1917, authorized March 1, 1921."

## LYMPHOPATHIA VENEREA

(LYMPHOGRANULOMA INGUINALE)

LESLIE M. SMITH, M. D.

El Paso, Texas

The name lymphopathia venerea was proposed by Wolf and Sulzberger<sup>1</sup> in place of the more popular one, lymphogranuloma inguinale. In as much as this disease does not of necessity involve the inguinal region and is, in the great majority of cases, transmitted by sexual contact, the newer term seems the more appropriate, and will be used in this communication. Lymphopathia venerea has been described heretofore under the names climatic bubo, strumous bubo, non-tuberculous lymphadenitis, lymphogranulomatosis inguinalis, esthiomene (the lymph stasis vulval lesions in women), and a variety of others. It has been known in the tropics and in Europe for years, but only during the last few years has it attracted attention in America. Non-tuberculous inguinal adenitis has been reported, but its relation to the so-called tropical bubo was usually not recognized. Undoubtedly many of us have seen cases of unexplained inguinal adenitis in the past, but hesitated to make a diagnosis of a tropical disease which we did not know existed in this country. We were handicapped, too, by the fact that there was no specific diagnostic test. The introduction of the diagnostic skin test by Frei<sup>2</sup> in 1925 facilitated the study of the condition, and as a result many cases of obscure adenopathy and ano-rectal pathology have been recognized as lymphopathia venerea which had formerly been diagnosed otherwise. It is evident from the increasing reports of lymphopathia venerea that the disease is at present far from rare in this country, and as it is unlikely that it has been suddenly introduced, one forms the impression that the scarcity of reported cases heretofore has been due to our lack of famil-

ilarity with the disease and our failure to recognize it. With the increasing literature on the subject and with a reliable diagnostic test at our disposal, the disease will soon be removed from the list of rare diseases. For a fuller consideration than is possible here, those interested should read the articles by De Wolf and Van Cleve<sup>3</sup> and Cole<sup>4</sup> in particular, as these authors have probably had a greater experience with lymphopathia venerea than have any others in America.

**Clinical Course:** Lymphopathia venerea is caused by a filterable virus and is almost always transmitted by sexual contact. The average case in the male begins with a primary lesion on the penis, appearing in from a few days to a week. According to Cole this may appear in one of four types: Herpetic, ulcerative, nodular, or as a specific urethritis. The primary lesion is characteristically insignificant in appearance, and is most often not noticed at all. In from 10 to 21 days after exposure the inguinal lymph nodes become enlarged, the overlying skin becomes adherent and purplish, and the nodes suppurate and form multiple chronic draining sinuses. The iliac nodes may also become involved and palpable, but do not suppurate. After weeks or months there is a tendency to healing with scar retraction and in some cases a resultant lymph stasis and elephantiasis. These signs may also appear during the activity of the disease. Late in the disease there may be involvement of perirectal lymph nodes and scar formation resulting in stricture.

In women the primary lesion is occasionally on the external genitalia and the resulting syndrome similar to that in the male. More often, however, it occurs on the upper vaginal wall or cervix, and instead of an inguinal adenitis the perirectal nodes are involved. There may be no symptoms at all until late cicatricial changes cause the development of rectal stricture or of lymph stasis about the perineum,

anus and vulva, with ulceration. Barthels and Dibersein, working with Frei's antigen, found five cases of inflammatory rectal stricture with positive skin tests. The work of other investigators bears witness to the fact that lymphopathia venerea must be considered in the study of rectal strictures, and the Frei test should be a valuable aid in these studies.

Bloom, reviewing the literature on extra-genital infection of lymphopathia venerea, mentioned several cases of cervical and axillary adenitis due to this disease, and reported a case of his own in which the disease occurred in the cervical nodes following a lesion on the tongue.

In many cases there are no general symptoms. In some, however, the adenitis is accompanied by malaise, fever, chills, arthritis, and erythema multiforme-or-nodosum-like eruptions. There is a moderate leucocytosis which usually is principally an increase in mononuclears.

Lymphopathia venerea should not be confused with granuloma inguinale which is an ulcerative granuloma involving the skin. The conditions seldom appear similar, but confusion of the two names exists in the minds of many who are not familiar with these diseases. The ulcerative vulval lesions might cause confusion.

In differential diagnosis the principal conditions to be considered are chancroidal bubo, tuberculous adenitis, bubonic plague, tularemia and adenitis associated with pyogenic infections.

**The Frei Test:** The final word in diagnosis is a positive reaction to the intracutaneous injection of Frei's antigen. This antigen is prepared by aspirating pus from an unruptured suppurating gland of a known case of lymphopathia venerea, diluting five to 10 times with physiological saline solution, and sterilizing. The latter is accomplished by heating for two hours on one day and one hour the next day at 60 degrees C. It is then cultured, and if sterile on ordinary media is ready for use. Lehman and Pipkin found that the addition of small amounts of various preservatives made no difference in the reactions. I have recently added .25 per cent phenol to my antigen and have found no interference with the reactions and no false reactions. Recently Tamura succeeded in cultivating the virus and preparing

an antigen from the cloudy medium. If this antigen proves satisfactory it will greatly aid us in obtaining a satisfactory supply for the treatment of the increasing number of cases. Drs. Bedford Shelmire, H. F. De Wolf and C. F. Lehman have at various times kindly supplied me with antigen in the absence of satisfactory cases in my own practice from which to prepare it. Lately, I have seen several unruptured nodes, and have been able to prepare my own. My antigens have been tested on several cases of tuberculous adenitis and many cases of non-lymphogranulomatous diseases with entirely negative results. All cases of typical lymphopathia venerea, and all cases proven to be such by other antigens, reacted in a typical manner. A positive reaction to Frei's antigen consists of an indurated papule one-half to two centimeters in diameter which appears in from 24 to 72 hours and persists for several days or a week or more. There may be an erythematous area surrounding the papule, and the papule is sometimes capped by a vesicle or pustule. Rarely a case of lymphopathia venerea fails to react to the Frei antigen. Active syphilis in the patient is said to be a cause of negative reactions. Positive reaction is rare in the ab-



Figure 1. Positive Frei test 48 hours old. Site of an older test is also shown.



sence of lymphopathia venerea, and is probably due to contamination of the antigen. To eliminate this danger of false reactions it is best to add a small amount of phenol or other bacteriostatic substance, and to test the antigen at intervals on both culture media and control patients. Once a patient has developed a positive Frei reaction he is likely to continue to react positively throughout life.

**Pathology:** Section of a lymph node infected with lymphopathia venerea shows a granuloma consisting of lymphocytes, plasma cells, epithelioid and new connective tissue cells, and an occasional giant cell. There are numerous areas which are broken down and infiltrated with polymorphonuclears. The skin overlying the nodes may be infiltrated with lymphocytes, plasma cells, and polymorphonuclears.

**Treatment:** Many forms of therapy have been suggested for lymphopathia venerea. Total extirpation of the infected group of nodes has often been necessary in extensive cases, and if thoroughly done is likely to be successful, although in some cases the resultant cicatrization has resulted in elephantiasis involving the leg and scrotum. Some authors have advised against incision of suppurating nodes, as thereby chronic sinuses have been formed. Weekly injections of glycerine into the opened nodes have been recommended by Pinard and Andre<sup>9</sup>. Antimony and potassium tartrate has been extensively employed, with definite benefit in some cases. Perhaps the greatest advance in the treatment of these cases was the intracutaneous injection of Frei antigen as suggested by Wein and Perlstein<sup>10</sup>.

I have had the opportunity of observing eight active cases and one apparently cured case of lymphopathia venerea in El Paso. All gave definitely positive Frei reactions with proven antigens. The study of these cases forms the basis of this report.

#### CASE REPORTS

Case I. J. S., Mexican man, 32, was admitted to El Paso City-County Clinic August 1st, 1932. He had had several attacks of gonorrhea, the last about five years before, but this was apparently cured. Four years before admission he had some enlargement of the left inguinal nodes which he thinks was preceded by a penile sore. Six months before admission he had what was supposed to be another infection of gonorrhoea. At this time the right

inguinal group of lymph nodes became swollen and suppurated forming several sinuses which continued to drain foul smelling pus. On admission there was a mass in the right inguinal region almost as big as the fist with several draining sinuses. The overlying skin was adherent and board-like, and there was an elephantiasis-like swelling of the right side of scrotum. The blood: Wassermann negative. Hb. 80 per cent; w. b. c. 10,200; polymorphonuclears, 62 per cent; monocytes, six per cent; lymphocytes, 32 per cent. Frei test (De Wolf and Shelmire antigens) was strongly positive on several occasions. At this time we had not begun the use of Frei antigen in treatment. The nodes were removed by Dr. W. R. Jamieson with apparently successful outcome. Several injections of Frei antigen were given for prophylaxis against recurrence.

Case II. J. E., Mexican boy, 18, was seen at the El Paso City-County Clinic July 16th, 1934, with enlarged right inguinal nodes of one month duration. There was no history of primary sore and there had been no constitutional symptoms. There was no breaking down of the nodes. Frei test was strongly positive



Figure II. Lymphopathia Venerea, showing two fluctuating areas and discoloration of overlying skin. (Case III.)

(Lehman antigen and my own). This boy was treated with intracutaneous injections of Frei antigen and intravenous injections of antimony and potassium tartrate for 10 weeks, after which he was discharged as cured.

Case III. L. A., Mexican man, age 28. On August eighth, 1934, presented group of enlarged tender nodes in left inguinal region. There was no history of primary lesion and no history of gonorrhea. On admission the glands were soft and fluctuating and overlying skin red. The patient complained of headache and of soreness in the neck. Wassermann test was negative but the patient was being treated for an old dormant syphilis. Frei test was strongly positive. The fluctuating mass was opened and drained and treatment was instituted consisting of intracutaneous injections of Frei antigen and intravenous injections of antimony and potassium tartrate. The discharge gradually diminished and the sinus healed about two months after beginning treatment.

Case IV. J. G., Mexican man, 26, was seen September 10th, 1934. There was no previous history of inguinal adenopathy. He presented an irregular ulcer about the size of a quarter on the prepuce. There was no induration. The sore had been present one month. In addition there were three smaller ulcers behind the corona. A large, soft mass had been present in the left inguinal region for three weeks. The patient also had syphilis, which was in an inactive state with a very slightly positive Wassermann. The Frei test was strongly positive. Hb., 80 per cent; r. b. c., 4,700,000; w. b. c., 12,000; polymorphonuclears, 74 per cent; monocytes, six per cent; lymphocytes, 20 per cent. It was difficult to decide whether we were dealing in this case with an unusually large and persistent type of lymphopathia venerea primary sore or whether there was a mixed infection of lymphopathia venerea and chancroid. The lesion had been treated considerably and it was impossible to find Ducrey bacilli in smears. This point was apparently settled by an intracutaneous test with Ducrey vaccine obtained from Dr. Fred Wise of New York. This test was strongly positive. The intracutaneous Ducrey test is specific for chancroid and as this patient gave no history of previous lesion, I feel safe in classifying this as a mixed infection of chancroid and lymphopathia venerea. The fluctuating nodes were

incised and drained. The patient was treated with intracutaneous injections of 0.1 to .15 cc. of Frei antigen at intervals of three or four days and intravenous injections of antimony and potassium tartrate three times a week. Local treatment was given on the chancroidal ulcer. On November 3rd (after less than two months of treatment) the patient was discharged as cured.

The following two cases were seen through the courtesy of Dr. W. R. Curtis, from his service at the Transient Bureau Hospital.

Case V. J. R., a negro man, 32, on August 20th, 1934, presented large fluctuating mass of nodes in right inguinal region of three weeks duration. There was no history of a primary lesion and the swelling appeared about one week after exposure. Frei test was strongly positive. The nodes were incised and drained by Dr. Curtis and the patient was treated with intracutaneous injections of Frei antigen and intravenous injections of antimony and potassium tartrate for about three weeks. By the end of this time the sinus had healed and the swelling had disappeared.

Case VI. S. C., negro man, 23, on September 20th, 1934, had moderately enlarged nodes



Figure III. Lymphopathia Venerea, showing several enlarged nodes, one of which was suppurated. (Case V.)



in both inguinal regions. There was no history of any condition which might have been a primary lesion. The nodes were not painful and there was no constitutional symptoms. Very slight softening in one place was noticed. The Frei test was strongly positive. Treatment with Frei antigen was begun but the patient disappeared from observation before the outcome could be determined.

Case VII. J. M., Mexican man, 40, was examined at the El Paso City-County Clinic on August 27th, 1934. There was slight swelling of the left inguinal nodes of two weeks duration. Wassermann was negative and the Frei test was repeatedly positive, using several antigens. A pyogenic lesion was found on the left foot which undoubtedly accounted for the adenopathy. The swelling of the nodes rapidly subsided when the pyogenic lesion was treated. We, therefore, looked further for the cause of the positive Frei test. On inquiry it was found that in 1921 he had had a large fluctuating node in the right groin which ruptured without incision, drained for a while, and left a large broad scar which is plainly visible. The patient had not noticed a primary lesion at any time. This case is presented to illustrate the persistent nature of the positive Frei reaction, once a patient has had lymphopathia venerea.

Case VIII. C. C. S., an American man, 28, was seen through the courtesy of Dr. Earl Rogers. This patient on August 15th, 1934, presented large swollen right inguinal nodes of three weeks duration. The patient had had gonorrhea some time ago but there was no history of other penile lesion. On examination, however, a small hypertrophic papule was found behind the corona which I think was likely the scar remaining from a primary lesion of lymphopathia venerea. Fever had been present for several days and was 101 degrees on examination. The patient also complained of headache. The Frei test was definitely positive on several occasions, the papule being capped with a vesicle and surrounded by an erythematous area. This patient was seen for only a few days when he disappeared from observation.

Case IX. E. C., Mexican woman, 39, was seen at the El Paso City-County Clinic August 20th, 1934. Six months before a nodular swelling had begun in the right inguinal region. She had not noticed any primary lesion of any

kind. At the onset there was fever. Multiple punctures were made at that time into the fluctuating areas and drainage instituted. On examination there were several draining sinuses with some retraction about the orifices.



Figure V. Lymphopathia Venerea in female. Multiple draining sinuses with retracted orifices. (Case II.)

There was induration about the whole mass of nodes. Frei tests with several antigens were strongly positive. Rectal examination by Dr. H. T. Safford, Jr., was entirely negative. Hb., 68 per cent; r. b. c., 4,440,000; w. b. c., 7,000; polymorphonuclears, 72 per cent; monocytes, six per cent; lymphocytes, 22 per cent. The patient was said to have a dormant syphilis. Treatment consisted of intracutaneous injections of Frei antigen and intravenous injections of antimony and potassium tartrate. On November 3rd (after 2½ months of treatment) the sinuses had all closed.

#### ANALYSIS OF CASES

In this series there were eight men and one woman, all presenting the inguinal localization of the disease. Six were Mexicans, one American and two negroes. A striking observation is the lack of history of primary lesion in most cases. Several cases had co-existent syphilis, but this was inactive and did not interfere with the Frei tests. The first case in the series was treated surgically. Of the others, those who persisted in the treatment by Frei antigen and antimony and potassium tartrate obtained satisfactory results.

When suppurating nodes were incised and the above treatment carried out the incisions healed without difficulty.

## SUMMARY AND CONCLUSION

Lymphopathia venerea—lymphogranuloma inguinale—is much more frequently encountered in the United States than we have usually supposed. Many cases formerly diagnosed tuberculous adenitis, gonorrheal adenitis, and even chancroidal bubo, have in reality been lymphopathia venerea, or mixed infection of chancroid and lymphopathia venerea.

The Frei test is a reliable aid in diagnosis, and should be performed on all patients with suspicious adenitis, whatever the location.

Cases of rectal stricture and of elephantiasis-like conditions about the scrotum, vulva and perineum, of unknown origin, should be given a Frei test.

Combined treatment with Frei antigen and antimony and potassium tartrate has given satisfactory results.

I am indebted to Doctors Maurice Spearman and Leland Evans of the El Paso City-County Hospital resident staff for much of the work in connection with these cases.

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## PYELITIS OF PREGNANCY

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Infections of the upper urinary tract occurring as a complication of pregnancy are relatively common, being seen in one to two per cent of all pregnant women. Early recognition and proper management are important in preventing serious consequences to both the expectant mother and the foetus.

The clinical and pathological pictures are more readily understood if one thinks of the condition as an infected hydronephrosis rather than pyelitis. It is important to realize that all pregnant women have chronic obstruction to the ureter causing hydro-ureter and hydronephrosis. The condition should be considered pyelitis only when the infection, consequent upon the obstruction, produces clinical signs and symptoms. Furthermore, the treatment becomes rational when we consider that the treatment is directed toward clearing up the infection. This may often be accomplished by conservative measures, but it may be necessary, in more severe cases, to relieve the obstruction to the ureter before the desired results can be obtained.

The clinical signs and symptoms are important in that they are the best index as to whether or not infection, which may be present in the urine, is dangerous to the patient.

## ETIOLOGY

Kretschmer, Lee and Mergert, and also Duncan and Seng, have demonstrated the important fact that all pregnant women have ureteral obstruction with varying degrees of hydronephrosis. In the majority of cases the urine remains normal and the condition goes unrecognized. Obstruction, however, always predisposes to infection. Some of the infected cases have few or no clinical signs or symptoms, while about one to two per cent develop the clinical picture of sepsis. It is this group with clinical manifestations that should be considered as having pyelitis of pregnancy.

Regarding the cause of this physiological ob-



struction during pregnancy: It has been found by Cornell, Warfield, Kretschmer and others that the right ureter is dilated in almost every case, while the left ureter often escapes. Baird studied the subject in an effort to determine where the ureteral obstruction occurred. He first examined the kidneys and ureters of 61 pregnancies that come to autopsy. In almost all of these cases the right ureter was dilated from the pelvic brim upwards, but there was a funnel-shaped narrowing from the pelvic brim to the bladder. The most marked kinking was just below the renal pelvis and was often acute, a moderate degree of hydronephrosis. The left ureter he found to be dilated more uniformly throughout its length. Baird then studied the excretion of indigo-carmin from the ureters in pregnant women to determine where the obstruction occurred. He found that there was a delay in the excretion of the dye unless ureteral catheters were passed. However, as soon as the ureteral catheter had passed the pelvic brim the indigo-carmin flowed freely.

This brings up the question as to what causes the obstruction and the consequent dilation of the ureters and renal pelvis. Bair, Duncan and Seng, and also Carson, believe that the pressure of the uterus on the ureter as it crosses the brim of the pelvis is sufficient to cause obstruction. Carson demonstrated that the uterus rested on the right ureter in each case, while the left ureter was protected to some extent by the sigmoid flexure. Hoffbauer has shown that there is a marked degree of hypertrophy and hyperplasia together with accompanying edema in the ureters of pregnant women. He is convinced that it is the hypertrophy that is responsible for the obstruction of the ureters, and that the right ureter is more affected because the uterus twists to the right, thereby kinking the right ureter, which is rigid from hypertrophy. The left ureter, on the other hand, is stretched by the rotation and, therefore, is less liable to become obstructed.

The colon bacillus is the most common invading organism, although coccus and mixed colon and coccus infections occur. It has always been a much debated question as to how the colon bacillus enters the urinary tract. Many authorities have long held that the only route by which the colon bacillus can enter the urine is through the blood stream. As a

basis for their argument they show that the sequence of events in this condition is first pyelitis, then cystitis and last of all urethritis. Helmoltz recently found that when he injected colon bacillus into the blood stream of rabbits, lesions occurred in the cortex of the kidney only. Ascending infections, on the other hand, caused infection of the renal pelvis.

#### SYMPTOMS AND SIGNS

The symptoms and signs of pyelitis of pregnancy are important not only because they help in making the diagnosis, but also because they determine the type of treatment to be followed. It should be emphasized that careful routine examinations of the urine during pregnancy is of utmost importance. The examinations should be carried out most diligently between the fourth and eighth months. The urine should be examined for sugar and albumin. Particular attention should be paid to the stained sediment in an effort to find the colon bacilli or cocci.

The symptoms are primarily dependent upon the degree and location of the infection and can be grouped accordingly. In the first place, there is a group of patients in which the urine contains colon bacilli but no pus. They have no inflammation and, consequently, no symptoms. This type of patient should be carefully watched and treated with urinary antiseptics in order to control infection.

The second group have bacteria and pus but no symptoms. They also should be carefully watched and treated.

The third group complains of pain, burning and frequency of urination. Their urines show pus and organisms. Painful frequent urination is due to the irritation of the infected urine upon the bladder, and inasmuch as there are no other symptoms, it is not likely that there is inflammation of the upper urinary tract. These patients should have rest in bed and advice to drink large quantities of water. They should also be treated with urinary antiseptics.

The fourth group are the patients in which there is involvement of the renal pelvis with accompanying symptoms. They have frequent painful urination, with pain and tenderness in the costo-vertebral angle or in the abdomen. There may also be generalized symptoms of infection, such as chills, fever and rapid pulse. In some cases there is nausea and vomiting, with rapid loss of weight to emaciation.

A fifth group are the cases that show evidence of renal damage with diminished renal function. In these cases the blood urea rises and the albuminuria is out of proportion to the amount of pus present. The last two groups constitute the cases in which it is generally necessary to relieve the obstruction to the ureter.

#### TREATMENT

The treatment depends not only on the findings upon examination of the urines, but also on the signs and symptoms. The treatment should be directed toward the relief of the symptoms and continued until such relief has been obtained. Conservative treatment is sufficient in most cases and should be continued until the condition becomes dangerous to the patient. It is then time to direct the treatment toward relief of the obstruction to the ureters.

Conservative treatment should include bed rest, the forcing of fluids, and the administration of urinary antiseptics. The patient with pyelitis should be urged to drink at least four to six quarts of water daily. This increased fluid intake will help to minimize the infection and keep the ureters from becoming mechanically obstructed.

The question of urinary antiseptics is a much debated one. Everyone with wide urological experience will have a particular drug which he considers more effective than others. The most that can be expected is that no urinary antiseptic is entirely satisfactory and too much cannot be expected of them. We will briefly mention the more common drugs and methods. Gibberd, speaking for the English school, points out that colon bacillus infection is usually associated with an acid urine. The English urologists direct their treatment to constant alkalization of the urine. They give 60 to 120 grains of potassium citrate every three hours testing the urine repeatedly with litmus to be certain of its constant alkalinity. Walther and Willoughby, and also Brown, consider pyridium the best urinary antiseptic, particularly in coccus or mixed infections, but also claim relief of symptoms in bacillary infections. They give from 0.1-0.2 grams orally three times a day. Gillespe has demonstrated by laboratory methods that pyridium is not effective as a urinary antiseptic.

Helmholz experimented with the use of me-

thanamine as a urinary antiseptic, insisting that the urine be rendered acid to a pH. of 5.0 with ammonium chloride, and that the pH. should be checked and cultures of the urine made repeatedly while increasing the dose of methenamine. Recently the method of giving the patient a high fat diet to produce ketone bodies in the urine and restricting the fluid intake has been recommended as a method of eliminating urinary infection.

When conservative treatment in pyelitis of pregnancy with sepsis has failed ureter drainage must be instituted. In this clinic there have not been any cases so severe that they would not respond to ureteral catheterization and drainage. If the patient fails to show marked improvement after 48 hours of conservative treatment, the urinary stasis which is the underlying cause of her pyelitis, must be relieved. A cystoscopic examination can be safely employed at any stage of pregnancy. A ureter catheter is introduced on the infected side and left indwelling until the patient becomes afebrile. Fluids should be forced to four to six quarts in 24 hours, with the end of the indwelling catheter placed in a sterile vessel to drain. The contents of the kidney pelvis should be aspirated every hour. The catheter should be left in until the patient's temperature has been normal for 24 to 48 hours. The catheter may be left in for 14 to 16 days. Catheter drainage may be instituted a second or third time if the symptoms return.

Following recovery from an attack most patients continue to term without serious difficulty. A few will have recurrent attacks, generally of less severity than the first, and can be carried through by either intermittent or continuous ureter drainage. Ureteral obstruction with retention of infected urine can always be dealt with by drainage. Operative interference of any sort is infinitely more dangerous and less likely to provide a satisfactory outcome.

#### PROGNOSIS

Urinary infection commonly persists postpartum. Crabtree and Prather found that the average time for recovery was three months, but felt that even the cases that recover in three months should not begin another pregnancy for at least one year. They had some cases in which pelvic atony existed for two years with return of the pelvis to normal and



clearing of the infection at the end of that time.

Crabtree and Prather also found that while pyelitis has a tendency to occur in series, in some instances there is an acquired tolerance for infection which persists into subsequent pregnancies. Thus, severe pyelitis in one pregnancy may be followed by an afebrile infection in succeeding pregnancies.

The urine should be carefully checked and the patient treated during the puerperium until the infection has entirely disappeared. Patients who have had pyelitis during pregnancy should be discouraged from subsequent pregnancy for at least one year, or until the urine is free from infection. Even though such precautions have been taken pyelitis may recur during the next pregnancy.

The following cases illustrate the various forms in which pyelitis of pregnancy may manifest itself:

Case I. Primipara, aged 20 years. At the seventh month this patient developed pain in the right flank and definite costo-vertebral tenderness. There were no bladder symptoms. Her temperature was 101 degrees. The urine showed a trace of albumin, a few white blood cells and was loaded with bacilli. She was confined to bed, fluids forced and urinary antiseptics administered. After being afebrile for four days, she was allowed out of bed, but her fever returned, so she was again confined to bed for three days. Her symptoms did not return, but the urine continued to be infected during the remainder of her pregnancy.

Case II. Primipara, aged 17 years. This patient, six months pregnant, came complaining of frequency and nocturia every hour, pain in the back and right side, hematuria, nausea and vomiting. Her temperature was 99.4 degrees and pulse 86 on admission. She was confined to bed and the next day her temperature was 104 degrees and the pulse 126. The urine was loaded with pus and bacteria. Leucocyte count was 24,000. Cystoscopic examination and catheterization of ureters showed the urine from right side infected, and that from left normal. There were 30 c. c. of residual urine in the right pelvis and none in the left.

The right ureter catheter was left indwelling and lavage with boric acid solution was given every two hours. The temperature returned to normal in five days. The catheter was left in eight days. She remained afebrile and

asymptomatic, and was discharged the 22nd day.

She returned two months following the first admission because of pain in the right flank. At the time her temperature was 102 degrees. The ureter catheter was introduced again and left indwelling for 11 days. The temperature became normal in eight days. She remained afebrile and was discharged on the 13th day.

She had a normal delivery one month later. Just before delivery a catheterized specimen of bladder urine was loaded with white blood cells and bacilli. Two months after delivery the bladder urine showed 60 to 75 white blood cells and no organisms. Five months after delivery the urine was normal.

Case III. Primipara, aged 27 years, came to the hospital when she was five months pregnant. At that time she was mentally deranged. She said she wanted an abortion and had suicidal intentions. She also had pain in the back, chills and fever. Her symptoms had been present one month. On examination the right kidney was found to be enlarged and tender. The leucocyte count was 11,500. The urine had two-plus albumin, 300 to 500 white blood cells and was loaded with bacilli. The temperature went to 104 degrees each afternoon. She was observed in bed for five days with forced fluids and urinary antiseptics, but failed to respond. On the sixth day after admission, cystoscopic examination was done and the ureters catheterized. The right side had 50 c. c. retention and was loaded with pus and bacilli. The left side was normal. The right catheter was left indwelling with orders to aspirate all retained urine every hour and then lavage the pelvis with 1-4000 acriflavine. The patient continued to run a septic temperature for 48 hours in spite of the treatment. It was found that the nurses in charge of the patient were not carrying out the orders, but were withdrawing five c. c. of urine and introducing an equal amount of acriflavine. It was discovered that the actual residual urine at the time was 150 c. c. The nurses were again instructed regarding the complete emptying of the pelvis through the catheter every hour. The temperature returned to normal in three days. Her mental condition entirely cleared up in 10 days and the catheter was removed on the 17th day. The patient remained asymptomatic and was discharged on the 23rd day.

One month later the patient asked to return to the hospital to have the ureter catheter introduced because she was having pain, chills and fever. Her temperature was elevated. After 48 hours of catheter drainage it again returned to normal. She had a normal delivery at term. After delivery her urine had 25 to 30 white blood cells per low power field and many bacilli. She has not reported since.

Case IV. Multipara, aged 20 years, not pregnant, came to the hospital complaining of pain in the right kidney region, chills and fever. For the past three months she had had attacks of pain twice a week, each attack lasting 24 to 72 hours. She dated the onset of her present illness to her first pregnancy two years previous. During her first pregnancy she had had pyelitis which responded to conservative treatment. Three months after delivery of a normal child, she became pregnant a second time while her urine was still cloudy. During the sixth month of her second pregnancy she developed chills, fever and pain in the right side, which persisted throughout pregnancy. The condition continued postpartum becoming progressively worse.

The examination, on admission, was negative except for a mass in the right kidney region and costo-vertebral tenderness. Her temperature was normal on admission. The urine was cloudy and loaded with white blood cells and bacilli.

On cystoscopic examination the bladder was normal in appearance. The right ureter was obstructed at five cm. but the catheter passed readily. The urine from the right kidney was highly infected while the left was normal. Pyelograms showed right hydronephrosis and hydro-ureter down to within three inches of the bladder. The left pyelograms were normal.

The condition was diagnosed as stenosis of the right ureter following multiple pregnancies with persisting infection. The right ureter was dilated at two week intervals with complete relief of all symptoms. She was observed over a two-year period and her condition remained excellent.

Case V. Age 23 years. The patient was well until four and one-half years ago while she was two months pregnant. At that time she had frequency, burning and pyuria. The septic condition continued throughout pregnancy but she delivered a normal child. Her symptoms and

cloudy urine continued postpartum. She again became pregnant six months after delivery. At the third month of the second pregnancy she had chills, fever and bladder symptoms. The symptoms disappeared after 10 days rest in bed. Since this second delivery she has had pain in both kidney regions and bladder symptoms. There have been two subsequent pregnancies with induced abortions.

She entered the hospital because of pain in the left costo-vertebral region and fever. On examination her temperature was 99.2, pulse 98 and respiration 23. There was tenderness over both costo-vertebral angles. The urine was loaded with pus cells and organisms. Cystoscopic examination showed bilateral hydronephrosis and hydro-ureter. There was a stricture of the ureter on each side at about five cm. The urine from both kidneys was cloudy and infected. The blood NPN was 51.7. She was treated by ureteral dilation with marked improvement in symptoms. The right ureter was eventually dilated to No. 12 F. The left ureter could not be dilated beyond No. 6 F. The dilations were continued every two weeks for three months, and then once a month. Eight months following institution of this regime the patient developed increasing pain on the left side with chills and fever. Pyelograms, at that time, showed enormous increase in the left hydronephrosis and there was frank pus from the left ureter. The pyelograms of the right side showed no change and the urine from the right side showed marked improvement.

At operation an enormous hydronephrotic sack was found with the ureter dilated to more than one inch in diameter. This dilation extended as far down as could be reached through the nephrectomy wound. A left nephrectomy was done with normal post-operative convalescence. She has had the right ureter dilated once a month since the operation and has remained subjectively well. The urine still contains a moderate amount of pus and many bacilli.

#### SUMMARY

Hydronephrosis is a normal accompaniment of pregnancy. In some cases infection complicates the hydronephrosis causing pyelitis. Pyelitis of pregnancy should be treated by conservative measures such as bed rest, forced fluids and urinary antiseptics until the clinical signs and symptoms indicate that the condition



is becoming dangerous to the patient. In severe cases ureter catheter drainage may be instituted with safety and continued until the patient becomes symptom free. If symptoms return ureter catheter drainage can be repeated. The patient should be carefully watched as the condition may persist for months after delivery.

Five cases are reported to illustrate the various forms in which pyelitis of pregnancy may manifest itself; the methods of treatment are described.

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## CONGESTIVE HEART FAILURE

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Of functional disorders of the heart angina pectoris and congestive heart failure are of chief importance, the former more dramatic in its manifestations, the latter more certain as to the ultimate outcome. Both are due to functional insufficiency, the former of the coronary circulation, the latter of the myocardium.

Failure on the part of the heart to maintain an adequate circulation represents a potential congestive heart failure. This may be so slight as to pass unnoticed by the patient, or may occur with the suddenness of an anginal attack. Between these two extremes lie the chronic progressive failure associated with valvular disease, hypertensive heart disease and luetic heart failure. While the casual factor of any of these cannot be removed, the early recognition of congestive failure will do much toward retarding downward progress through adequate management.

Three types of circulatory failure: I. Peripheral failure—failure of fluid to heart, shock, toxic states, etc; II. failure of rhythmic mechanism—Stokes-Adams, ventricular asystole, vagus effects, ventricular slowing and fainting, auricular fibrillation and auricular flutter; III. failure of heart muscle: (a) Congestive, (b) anginal, and (c) paroxysmal—cardiac asthma, acute pulmonary edema, etc.

Clinically acute heart failure falls into three general groups: I. Those in which the auricles are primarily involved, as in chronic rheumatic mitral disease and thyrotoxicosis. In these cases total arrhythmia is associated with dyspnoea, cyanosis and usually edema; II. the cases in which the conduction system between the auricles and the ventricles is disturbed, leading to attacks of bradycardia and syncope; these are usually found to be cardiosclerotics; III. the cases in which the failure is primarily of the ventricles. These may be cases of valvular heart disease, either rheumatic or syphilitic, but frequently are associated with hypertension or coronary disease, or both. Pain, dyspnoea—often nocturnal—frequently pallor, lowered pulse pressure and collapse are the striking features; and in contradistinction to the rheumatic valvular cases, the rhythm is

usually normal. Muscle failure occurs in acute infections and is nearly always ventricular in type. Diphtheria offers an example of this type of failure. The pulse pressure drops alarmingly, due in part to ventricular failure and in part to capillary paralysis. The effect of edema on the utilization of oxygen by the tissues and the resultant metabolic disturbances are peripheral factors of importance in certain instances.

It is the group of cases associated with circulatory failure with which I am especially concerned at this moment. To these the term decompensation has been applied but congestive heart failure is a better descriptive term, for, according to Wenckebach, under certain circumstances the cardiac output of the failing heart—the heart showing evidence of congestive changes—may be normal or even increased for a time, yet coincident with this normal or increased output congestive changes occur, evidenced by slight breathlessness to profound engorgement of the venous system.

Mechanism of congestive heart failure: In heart disease one chamber or side of the heart is involved to a greater extent than the other with rare exceptions. For example, in the earliest form of heart disease—congenital heart disease—various types of developmental defects throw an unusual strain upon one side of the heart, right or left. This strain may be for a time entirely borne by one chamber, the auricle or ventricle, but usually the effect is noted both proximal and distal to the lesion. If the compensatory process is adequate the circulation is maintained in spite of the defect—a condition which occurs frequently in congenital hearts, and unless infection causes an added insult to the heart, through endocardial infections or myocardial damage, this compensatory stage may continue for many years—in fact, through the normal life span; but should there occur an excess load through any cause, as infection, strain or anything which furnishes a demand in excess of that of which the myocardium is capable, there at once appears a different picture—congestive heart failure.

The next group of cases in order of age occurrence is the large one of rheumatic valvular heart disease. Here mitral lesions occupy the place of prominence, with the stenotic factor the most important. Pure mitral stenosis is a rare pathological finding, but in the combined

lesion of mitral stenosis and mitral insufficiency the former is by far of the greater importance in the production of myocardial strain and ultimate failure. For a time the left auricle carries the load, but sooner or later this overstrain is reflected to the pulmonary circulation, and we have the first manifestation of congestive heart failure. This stage may be long or short but always the right ventricle receives an added load. If the patient be spared physical strain and infection especially pulmonary, the ventricle may undergo considerable hypertrophy so that the evidence of circulatory failure is limited to signs of pulmonary vessel stasis; but if the coronary circulation is inadequate hypertrophy fails to develop, or if it has developed it may prove inadequate to the needs of advancing stenosis and a general systemic stasis develops—the last stage in this progressive process. I have discussed only one example of rheumatic valvulitis. Should the aortic valve be the seat of the disease the resulting insufficiency will produce its effect on the left ventricle; however, the course is the same as with initial disease. With complete compensatory increase in the size and efficiency of the affected chamber the heart carries on as though naught had occurred; but, failing in this, somewhere the circulation shows a deficiency. If distal to the lesion, the signs will be those of malnourishment of tissues; if proximal, those of blood stasis. This then is in general the mechanism of congestive heart failure. It may appear in the forties with no antecedent history of heart disease. A recognized or unrecognized early syphilis may solve the riddle. At this age, likewise, the effects of hypertension become manifest in the heart; first hypertrophy and compensation, but with continued overload a final stage of dilatation and failure.

A last group we have to consider—the cardiosclerotics. In these the earliest manifestations of cardiac insufficiency are usually those of coronary artery narrowing, either slow and progressive, or the spastic type so frequently associated with the anginal syndrome. In these, circulatory stasis is not a striking feature; in fact, it may not occur at all or late.

Failure of the auricles plays a limited role in congestive heart failure, although the usually associated auricular fibrillation furnishes an added source of embarrassment to the already overtaxed ventricles; likewise, failure of one



ventricle taxes the functional capacity of the other ventricle. In hypertensive heart disease, following the initial stage of hypertrophy of the left ventricle when the increasing load becomes too great for this chamber, dilatation occurs and, with this, relative mitral insufficiency. The left ventricle fails to pump the blood onward which comes from a still competent right ventricle, and the left auricle dilates. In time pulmonary vessel engorgement becomes so great that the right ventricle in turn dilates, and the last stage of congestive heart failure appears. Common precipitating causes of congestive heart failure are any sort of strain—at times that of strenuous effort—the changing of an automobile tire, a sudden sprint in one not accustomed, a too strenuous golf game. Sometimes it may accompany a trivial physical strain, a slight respiratory infection, emotional strain or an unwise meal. These may appear to be sole causes in certain cases, but a careful analysis of all factors will usually show a heart already seriously damaged by valvular heart disease, by long standing hypertension, or by coronary artery disease. Other common basic causes are chronic pulmonary disease and thyrotoxicosis. With the latter frequently are associated rapid heart action due to auricular fibrillation and flutter, and paroxysmal tachycardia in which fatigue is an important factor. While all of these more frequently cause the primary failure on the left side, recent studies show the importance of pulmonary tissue changes and pulmonary sclerosis on the integrity of the right ventricle and the not infrequent failure of this chamber before there is any appreciable change in the left heart. Continental writers, and recently Coombs<sup>2</sup>, have called attention to the real danger of cardiac failure in angular deformities of the spine through aortic kinking, inadequate pulmonary air spaces, and diaphragmatic restriction.

Age plays an important part in this process. Failure occurs in childhood, though infrequently, and then usually due to an extensive pericarditis. More often even in the badly damaged hearts this is postponed until the sixth decade when coronary artery changes limit the blood supply to the overtaxed ventricles. It is questionable whether the undamaged heart may ever fail due to strain alone, but long continued functional tachycardia may so fatigue the normal muscle that it finally fails.

**Pathology:** White calls attention to the unfortunate trend of modern teaching to overemphasize the importance of the myocardium and to underestimate the importance of the valvular lesion. The essential factor, however, remains the diminution in the systolic power of the myocardium. There is no pathognomonic lesion in congestive heart failure. While enlargement, due to both hypertrophy and dilatation, is usually found, this is by no means the rule. According to Clawson<sup>3</sup> "approximately half of the cases of myocardial failure show no anatomical changes in the heart muscle." These cases he explains as due to an exhaustion of the heart muscle. In this group fall the cases of myxedema heart and the heart in beriberi, both functional myocardial disturbances and both reversible by simple treatment; the former by thyroid extract, the latter by vitamin B. Harrison<sup>4</sup> and his co-workers state that the thickness of the muscle fibers and the associated heart rate are of importance; the subjects with enlarged hearts have rates much faster than optimal and fatigue may result therefrom. While these hearts show hypertrophy and dilatation, there may be no other evidence of myocardial abnormality sequential to congestive failure. Two years prior to the reports of Blumgart<sup>5</sup> these authors suggested that a subnormal heart rate would be beneficial to "cardiac fatigue" and thus suggested the basis of total thyroidectomy in congestive failure. The remote effects of congestive heart failure on other organs are those of local circulatory insufficiency—edema—which if transient may cause no permanent damage, but if long continued compression changes and fibrosis may follow.

Another factor not sufficiently recognized in congestive failure is the venopressure mechanism that pushes the blood back through the veins to the heart. It is this that often fails and precipitates congestive heart failure. Y. Henderson<sup>6</sup> has shown that if in a rabbit the pulmonary artery is clamped and the vena cava opened, 50 per cent of the blood of the body will flow out, showing that there is some other pressure than the heart behind the venous return. Henderson after 25 years' search for the cause of this venous push concludes that it is the tonus of the skeletal muscles, particularly those of the abdomen and diaphragm, and that this tonus is especially influenced by the state of the respiration. If respiration is depressed,

the diaphragm is relaxed, lung capacity is decreased, skeletal muscle tonus is reduced, and circulation volume is decreased. Strychnine was widely used by the past generation of doctors as a circulatory stimulant. It is probable that it increases muscle tonus and thus increases the efficiency of the venopressor mechanism.

**Symptoms of Congestive Heart Failure:** The earliest and most lasting symptom is dyspnea. This may develop so insidiously that the patient is not aware of it, and only after a severe break does he realize that accustomed effort has for a long time caused undue fatigue and some respiratory distress. It may occur suddenly, as in the acute cardiac asthma of advancing years, and may or may not be associated with precordial pain. As these attacks of cardiac asthma become more frequent, Cheyne-Stokes respiration appears. In extreme cases of complete failure of this type may occur the symptoms and signs of acute pulmonary edema. In all of these the cause is oxygen want in the respiratory center due to increased cerebral venous pressure which diminishes the blood flow, leading to anoxemia of the respiratory center; oxygen therapy is beneficial.

These are the cases described by Allbutt<sup>7</sup> as "ventricular defeat"—the cardiac asthmatic with hyperpiesis who suffers nocturnal attacks following exertion of the day before. Adrenalin (or ephedrine) often relieves these because it dilates the coronaries—a fact not well enough recognized.

Acute pulmonary edema, a less frequent syndrome, is likewise usually nocturnal and always of grave prognosis; death frequently occurs in the attack. In these cases the left ventricle suddenly fails while the right continues to function with a disproportionate force, the result being that since the left heart fails to force the blood onward, there is rapidly increasing engorgement of the pulmonary circuit. While pain is not a part of the picture, excepting when this is associated with coronary thrombosis, the seizure is no less dramatic than in coronary thrombosis or angina pectoris. Allbutt<sup>7</sup>, describing such an attack wrote "... Someone exclaimed, 'Angina pectoris.' Thoracic agony it was indeed, but dyspnea is not a character of angina pectoris."

Sudden or paroxysmal right heart failure is a rare event, one-fifth to one-fourth as fre-

quent as left ventricular failure excepting as a sequel of thrombosis of the right coronary artery or of an acute pneumonia; but slow progressive failure of the right heart is a common event in rheumatic heart disease and is characterized by its chronicity and tendency to occur in bouts from which the patient makes a partial recovery and may even live for several years. Contrast this with the failure of the left heart in syphilitic or hypertensive heart disease. Congestive heart failure with leucic aortitis rarely clears because the narrowed coronary orifices reduce permanently the blood supply to the left ventricle. In either the sudden or slow progressive type of right heart failure cyanosis and other evidence of venous engorgement dominate the picture.

More commonly both the right and left ventricles are involved in congestive heart failure, though often disproportionately. Here signs and symptoms are due to the dual involvement. Dyspnea becomes more constant and urgent, and orthopnea supervenes. To slight cyanosis is added liver engorgement and dependent edema, the former more readily noted in bed patients; in those up and about, edema of the legs occurs first. A distended liver may be easily missed by placing the palpating hand too high on the abdomen. The "lumbar pad" may be the sole evidence of dependent edema in the bed patient. In the ambulant patient there may be difficulty in the determination of the cause of the dependent edema, especially in fat women with the present style shoe; but edema due to peripheral causes, anemia or debilitating disease rarely causes pitting except after exertion in hot weather. Slight puffiness of the feet and ankles is commonly encountered in those whose occupation requires standing without the massaging effect of muscular exercise of the legs. Pleural transudates may occur with any right heart failure. These are more frequent on the right, and should there be an old obliterating pleurisy, bizarre localization may be noted, as in one case recently reported by Steele<sup>8</sup> of an interlobar pleural fluid in each of four attacks of heart failure.

Abnormal pulsations in the neck veins furnish accurate information of right heart failure and this increase in venous pressure, described as the positive venous pulse, usually precedes liver enlargement or they occur simultaneously. These patients are breathless, either at rest



or with very slight exertion. In the presence of extensive lung changes, as in pneumoconiosis, pulmonary fibrosis or bronchiectasis, it is often difficult to determine to what extent dyspnea may be due to associated cardiac insufficiency. Lewis<sup>9</sup> has stated that "if it is established that a patient has no congestion of the venous system and is yet breathless in bed, then that breathlessness is not primarily cardiac in origin."

Vital capacity determinations may be of considerable assistance in determining the extent to which the pulmonary extensibility has been reduced by pulmonary vessel stasis. They do not add much in diagnosis after a careful physical examination, including inspection of the neck veins, has been made, but they may be of considerable value in the management of the patient and furnish some prognostic evidence.

Other signs of value may be mentioned: The protodiastolic gallup rhythm of ventricular dilatation and impending failure; pulsus alternans, the alternating strong and weak beat, recognizable oft-times by palpation of the pulse—always by the sphygmograph and always a sign of left ventricular failure—in fact, the only pathognomonic sign of pure left ventricular failure. This may not occur continuously but only for a few beats following a premature contraction; accentuation of the second sound at the pulmonary artery area, indicating an increased pulmonary vessel pressure, but not always of a failing heart; x-ray evidence of dilatation of one or all chambers of the heart; for this purpose the fluoroscope offers much that is missed in the film, since the extent of systolic contraction may be estimated.

The study of murmurs plays a minor part in the determination of heart failure, especially of the left heart, excepting that murmurs frequently disappear with dilatation. Lewis has stressed the fact that in failure heart signs do not change much, but peripheral signs and symptoms change frequently. Demonstrable increase in heart size within a short period means dilatation or pericardial effusion; with this the sounds become more distant and less distinct; if effusion be excluded the picture is that of failure.

Blood pressure is usually diminished but not always; in fact, it may remain elevated, while the heart is dilating.

So far no mention of the electrocardiogram:

What can it tell us of failure? Much can be told regarding hypertrophy of the right and left heart, practically all we need to know regarding myocardial degeneration, the arrhythmias, and conduction disturbances which so frequently initiate heart failure, but what of failure itself? In the absence of coronary artery disease low voltage is probably the sole evidence of the failing heart obtained from the electrocardiogram, and even this change has been noted in the absence of clinical evidence of failure.

**Treatment:** Since by the time congestive heart failure appears there is usually irreparable damage to the heart muscle, little can be expected from treatment but an amelioration of the distress resulting from functional failure. The average duration of life after the onset of symptoms of congestive heart failure is brief in all but the rheumatic and thyrotoxic cases and the small group occurring in the course of an acute infection. Romberg<sup>10</sup> found this about six months in a group of poor patients; in those more fortunately situated it will be more. If the failure occurs in a bed patient little can be expected from treatment.

In spite of all of the advances made in other fields of medicine rest and digitalis remain our sheet-anchor.

Rest will vary from a simple elimination of the types of strain which precipitate the mild attacks to the complete and absolute bed rest required in the failure secondary to a coronary thrombosis. Where absolute bed rest is necessary the physician too often errs in allowing a resumption of effort at too early a date. In the patient who requires a long continued bed regime attention should be paid to back rest, or, better still, an adjustable bed of the type of the Gatch bed, or one devised by Lewis in London and recently modified by White in Boston. I have seen patients perform more work in bed than they would have in being assisted once or twice a day into an easy chair, and more work in the use of the bed-pan than in being lifted to a commode. The old-fashioned rocker is a convenient substitute for a special bed since it can be adjusted to any position; if not so adjusted it should be blocked to prevent tendency to rock in such a chair, which entails no small amount of work in the course of an hour or so. Rest should also imply rest from disturbing factors. One who has passed through

a personal hospital experience knows how frequently the kindly visitor saps the energy.

Digitalis: The most frequent error is that this drug is not given in sufficient doses; when employing this drug in large doses one should, with Dr. James B. Herrick, recall Mr. Dooley's definition—"Drugs are a little iv a pizen that a little more would kill ye." In urgent failure, when the drug has not been given in the preceding week or two, the massive method of Eggleston or some modification is desirable. Eggleston gives within twenty-four hours 1.5 gr. of the dried leaf or 1.0 c.c. of the fat-free tincture to 10 pounds body weight. Most doctors have their personal likes as to preparations. Mackenzie and Wenckebach stated that life was too short to learn all they needed to know about one form of this drug. If a dependable dried leaf is available, it is probably preferable, but for most of us a dependable fat-free tincture is preferable because there is less chance of deterioration. In the presence of nausea and vomiting the intramuscular injection of fat-free tincture is advisable because all of the gastrointestinal tract is edematous and non-absorptive. In case of generalized edema it may be necessary to give a water soluble digitalis intravenously, although this method carries a greater degree of risk than does the intramuscular method; in the majority of cases the oral administration of digitalis is preferable. When large doses are given or the drug is employed over long periods, the toxic effects of the drug should always be constantly looked for. In addition to the usual anorexia, nausea and vomiting, at times diarrhea, and the direct cardiac effects such as slowing and irregularities due to premature contractions, one may encounter visual disturbances of equal significance sometimes preceding any of the above mentioned symptoms of cumulative effect. Withering noted that under these circumstances all objects appear green and yellow, at times red and blue, or take on a snow or hoar-frost appearance. All of these are increased in the sunlight and to a less extent by artificial light. Dim, veiled, cloudy or cottony vision may likewise occur. In none of these is the mechanism clear. Delirium may occur rarely as an unusual toxic symptom.

For the relief of cardiac edema digitalis is ordinarily the best diuretic. If this is inadequate, one may employ mercury and for this purpose

novasurol or salyrgan (1-2 c.c. intramuscularly) are often followed by significant diuresis. Because it is attended by less renal irritation, salyrgan is more frequently employed and best preceded a day or two by ammonium nitrate or chloride—in fact, often these latter drugs alone suffice. Recently urea has been administered in cardiac edema. This acts as a diuretic without impairment of the kidneys and capable of use over long periods. The purin diuretics—caffeine, theobromine and theophylline—are less spectacular in their results and are more liable to cause nausea. Any of these is often more effective after tapping the pleura or abdomen. Likewise, a distended bladder in the male may seriously interfere with diuretics. Incision of the legs by multiple punctures or Southey tubes may be employed in edema not responding to other methods. In the use of any diuretic the daily record of fluid intake and output and of weight loss is most important.

The method of venesection used by the earlier generation of doctors is too little used today. In the presence of urgent pulmonary congestion the removal of 300 to 600 c.c. of blood is usually followed by prompt improvement in symptoms.

Diet plays a minor part in cardiac therapy so long as a light diet is employed. One should prohibit a heavy evening meal for most cardiac patients. A light supper will often prevent the occurrence of preexisting nocturnal dyspnea. In cases where there is marked edema the diet of Karel!—800 c.c. of milk a day for a few days—may act as an effective diuretic, to be followed later by a modification of the same by adding the usual light diet. In certain instances there appears to be a relationship between edema and the sodium-potassium ratio in the diet. By substituting potassium for sodium, especially in non-valvular heart disease, a marked diuresis may be obtained. While the evidence is somewhat conflicting as to the role of salt in hypertension, it is probably wise in this condition, with or without edema, to restrict the salt intake.

In any case of sudden failure associated with marked dyspnea, with or without pain, morphine will be of equal value to digitalis. The relief obtained is prompt and permits the rest so sorely needed. Codeine, pantopon, bromides, and barbitals may be used in less ur-



gent situations. In acute pulmonary edema atrophine may be advantageous.

In severe cases oxygen therapy by the open or by the closed (tent) method will be of great assistance. The cyanosis improves, the patient breathes without so much effort, rest is obtained and diuresis may continue one to several weeks after the withdrawal of oxygen. The effect of too sudden withdrawal will prove conclusively the advantage of the procedure.

Experimental evidence shows that glucose furnishes a temporary increase in the supply of carbohydrate, especially to the respiratory center. Feeding appears to be preferable to the intravenous route because in the latter the increase is of shorter duration. It may act as a cardiac stimulant, but Smith and Luten<sup>11</sup> claim that it is not effective in restoring and maintaining compensation. Yet there appears to be sufficient clinical evidence to justify a continuation of it in threatened or actual failure.

Coramine, a synthetic drug, pyridine-beta-carbonic acid-diethylamide, has recently been introduced as a substitute for digitalis. It is claimed that there is no cumulative effect, no nausea in full doses, and that it is especially effective in the control of cardiac asthma. My personal experience is that the same results may usually be obtained with the proper use of digitalis.

Quinidine is not used in the presence of congestive heart failure because of the danger of embolism, but it is of distinct advantage in the prevention of failure since the reestablishment of a normal rhythm before failure sets in will remove an important factor (auricular fibrillation) which contributes to the onset of failure in these cases.

**Thyroidectomy:** In the past year several reports have appeared from Boston. Blumgart and his co-workers<sup>5</sup> have presented a group of 40 cases of congestive heart failure which had not responded to the usual methods of management. In about one-half of these there has been "economic rehabilitation" over a period of three to 16 months following the total removal of the thyroid gland, in consequence of which there was a marked reduction in the basal metabolic rate. Time will not permit an extensive discussion of this new procedure. It is certainly radical but there is both theoretical and clinical evidence in support of the contentions of these workers.\*

(Since the delivery of this paper these authors report on a total of 75 patients, in whom total thyroidectomy was performed, with comparable results. Blumgart, H. L.; Berlin, D. D.; Davis, D.; Riseman, J. E. F., and Weinstein, A. A.: Total Ablation of Thyroid in Angina Pectoris and Congestive Failure, XI Summary of Results in Treating 75 Patients During the Last 18 Months, *J. A. M. A.* 104:17-26, Jan. 5, 1935.)

There remains one more drug to mention, epinephrin, of chief value in vasomotor collapse, likewise in acute pulmonary edema, although acute pulmonary edema has been known to follow its use. It is of great value in certain cases of cardiac asthma, acting as a coronary dilator and cannot be considered as a means of differentiation between cardiac and bronchial asthma. Two recent personal experiences show that a similar effect may follow the use of ephedrine. Epinephrine is the only means for the relief of cardiac standstill, in which case it must be injected into the heart muscle. Because of its pressor effect it is to be avoided in angina pectoris, coronary thrombosis and aneurism.

The picture is not alluring; save in the rheumatic cases the progress is downward following the first failure: we have barely scraped the surface in demonstrating what may be done in the preventive management of our cardiac patients. The real future of cardiology lies in that direction.

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## TRAUMATIC EMBOLI

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(Read before The New Mexico Medical Society at its 52nd Annual Meeting at Las Vegas, N. M., July 19-21, 1934)

I shall make this a surgical discussion, under symptoms, source, pathology, incidence and treatment and consider as traumatic agents only the commonest, which are: Thrombi, air, and fat, and the effect of their lodging in the lungs, coronary arteries and brain.

The symptoms of the pulmonary emboli are: Sudden sharp pain in the chest, rapid respiration, rapid pulse, and development of an area of consolidation with moist rales.

The symptoms of emboli in the coronary arteries are: Sudden loss of pulse, palor and ashy color, no convulsions, secondary respiratory failure (patient not likely to recover after five to seven minutes).

The pathology of thrombotic emboli at their destination is well understood because it is

chiefly mechanical while the etiology has been confusing and upon this account treatment has been misapplied.

It has been common to attribute the source to infection but careful statistics show many cases with none, even of low grade. It seems to be inherent that only one in 10,000 cases of intravenous obliteration of varicose veins ever has emboli.

Lockert, Mummery, De Coursey and several Germans feel that the source is not in the initial venous stasis but in a slowing of the general circulation, especially in the extremities.

The best statistics come from the continent and apparently in recent years emboli have been on the increase with high points in 1924 and 1929.

This was really in the aggregate as Tempsky reports 1458 cases of operation for carcinoma of the stomach with 45 cases of thrombotic emboli. This is interesting since cases of emboli with malignant tumors showed the greatest increase.

Among 1767 laparotomies for appendicitis there were 29 cases of embolism. Among hernias there were 0.2 per cent of emboli. There were more cases in cold weather than in warm and in women there were three times more than in men. Pulmonary embolism was found more in cities than elsewhere. The incidence was found to increase with increasing age.

The Mayo Clinic reports 267 cases of fatal pulmonary embolism 1917 to 1927 in 63,347 major operations.

So many embolic conditions are associated with heart disease that we must pay some attention to the heart function as a matter of prophylaxis.

In treatment of heart cases digitalize all patients with, dyspnea on exertion, whether pulse is irregular or not, definite cardiac lesion whether pulse is changed or not, auricular fibrillation, past or present, paroxysmal tachycardia, edema or history of edema (the exception is in patients over 50 years of age in whom fluids have been forced), and previous attack of coronary occlusion. Digitalis is better used thus than as a postoperative treatment for shock and cardiac failure. Electrocardiograms may designate poor risks by inverted T waves.

Active treatment as advised by continental clinics has been: Free drinking of water before operations, maintaining volume, reverse Fowler



position in bed, improve circulation of lower extremities by, action, bandaging for 12 to 14 days, heat from arc lamp and diathermy (sometimes). All this is beneficial but is not satisfying either theoretically, scientifically or practically.

In the literature thrombosis and emboli are discussed together when in reality they should not be. Thrombosis is most prevalent at age of 40, while thrombotic emboli are usually in those over 40 years of age. Since 1900 there has been an actual increase of deaths due to thromboses but not much in deaths due to thrombotic emboli.

There is a feeling, however, that the source of thrombosis and thrombotic emboli may be one and the same; the end result is similar. Many good men still cling to the theory that emboli are due to a slowing of the circulation and there may be some basis for this in that there are so many cases of emboli in non-operated or injured cases that have severe cardiac trouble. Some, like Franke, Kuskow, Kinzel and Pathy feel that infections may contribute in an indirect way by a secondary or poisoning effect. Another group, including Payr, Morawitz and Rahm believe that patients subject to emboli and thrombosis are a constitutional type. This may be transient but definite. Their method of detecting these typical individuals is by injecting one c.c. thyroxin. Those that are sensitive show a quickened pulse and rise in temperature with a slight increase in the erythrocytes and decrease in the platelets. After two or three injections these changes increase two or three times and coagulation time is longer. On a patient of this "sensitive" group, Bankoff believes that an operation or trauma will produce similar effects and they will not develop thrombotic conditions. On the other hand, "thyroxin resistant" patients show no change with the same procedure and are always a possible thrombotic danger. The real action must be explained by theory. Freund and Boshamer believe that the effect is on the vegetative nervous system, which at the same time affects the cardiovascular system, producing the clinical symptoms in the patient. This paper of Bankoff in *British Med. Journal*, Feb., 1934, states that without exception cases of thrombosis found have been in the "resistant" group. The treatment involved as a result of this investigation is epheton gr.  $\frac{1}{4}$ , atropine gr.

1/100 hypodermically given every other day for at least three doses from the fifth day after operation. Since then not one patient treated in this way has suffered from thrombosis or embolism.

The scientific explanation is as follows: Epheton causes a change in the blood picture so that in six hours the platelets are less than 100,000 per cu-mm. This happens after each injection until the third when there is no further change. Coagulation time is lengthened two to three times. In smaller hospitals and where the laboratory equipment is not sufficient, it may be best to treat all injury and surgical cases as "resistant." Epheton is not expensive and neither it nor atropine is harmful. It will take the records of a large clinic to give us a conclusive test, but we, with smaller groups can be contributors and reduce these startling fatalities to a minimum at least.

W. Koenig with a platelet theory evolved through much study but differing some from Bankoff in that he emphasizes toxicity of nuclear degeneration, advises sympatol or blood as treatment. Prophylaxis is suggested by giving by mouth 20 drops of a 10 per cent solution of sympatol t.i.d. for a week or one c.c. hypodermically daily when oral administration is not possible. This is supplemented by deep breathing of carbon dioxide several times daily.

Between 1930 and 1932, 500 patients over 20 were treated thus prophylactically. These were compared with 500 cases in the same year and also with 500 cases of 1929 with the following result: Sixteen per cent of those treated in 1930 to 1932 developed thrombosis; six per cent of those untreated in 1930 to 1932 developed thrombosis; 4.3 per cent of those untreated in 1928 developed thrombosis. Among the treated cases there were two fatal cases of pulmonary embolism on the seventh to 14th day in very fat men. Personally I feel that these were probably due to fat embolism and should have had other treatment. Sympatol, an adrenalin-like drug harmless even in large doses, is easily taken and could be used routinely in injury and operative cases prophylactically or actively. Koenig's statistics seem quite convincing.

Waltman Walters of the Mayo Clinic reports 4500 major surgical procedures over four and a half years, all of which were given thyroid gr. ii, t.i.d. postoperatively for eight to 12 days.

This reduced a previous rate of fatal cases from 0.34% to 0.09%. This was based on investigative work of Shironoya and Rowntree, who showed in rabbits a distinct slowing of thrombosis after thyroxin.

This concludes my discussion of thrombotic emboli and brings me to the topic of air embolism, a subject with which you have all had some practical experience and perhaps some sad results.

The symptoms of air embolism were described accurately in 1864 fully 35 years before artificial pneumothorax was even advocated, and long before intravenous medication was attempted.

Of recent years, severe "pleural shock" so called, has been proven to be air embolism, usually due to a needle tearing a pulmonic vein. It has been shown experimentally that air under pressure can enter the blood through normal mucous membrane of the lung and that although dogs can recover after injections of 20 to 60 c.c. given slowly, air can be sent into the circulation too rapidly for such recovery and in too great amounts, especially in wounds of: Intra-cranial sinuses, veins of neck and lungs, pregnant or puerperal uterus, veins of subcutaneous or fatty tissue and veins torn in long bones, especially the tibia.

Large amounts injected slowly are absorbed by the blood; smaller amounts given rapidly may have serious effects. The results may be: Blocking pulmonary circulation, blocking cerebral circulation, especially as in veins of neck and sinuses, blocking coronary circulation, which is most serious and sudden of all.

Coronary occlusion causes arrest of the heart in systole instead of the usual circulatory failure in diastole. The patient becomes pale and ashy, without convulsions and with secondary respiratory failure. This is almost hopeless as far as resuscitation goes, and is not influenced by massage or adrenalin.

In laboratory experiments removal of the air from coronary arteries with a syringe revived the circulation, if done within seven minutes time. Experiments with dogs by Rukstinat and La Count showed: Recovery or death is prompt; delayed cerebral embolism following coronary embolism was not observed in dogs.

Fitzsimmons has made a report of 10 cases who collapsed during pneumothorax, of whom, seven were sitting up, four collapsed before air

was introduced, six had convulsions, six became totally unconscious, and nine showed pleural adhesions by x-ray.

The treatment is; I. Prophylactic—x-ray picture to show adhesions to pleura, positive pressure, ligation or cautery, blunt Floyd Robinson needle, No. 17 Gage for aspirations, lower head for 10 minutes at least, clamping, or prompt pressure with finger on veins of neck while operating, ergot in atonic uteri during or after curettage.

II. Active—head down 30 degrees with body, lower head of bed, artificial respiration and oxygen for initial shock, direct massage of heart by Trendelenburg operation in pulseless cases, and morphine and adrenalin.

Sudden collapse of heart means coronary emboli and valuable time is lost with adrenalin, massage and stimulants.

Few cases have been operated successfully for coronary occlusion because of delay in making diagnosis.

This concludes my remarks on air emboli and brings me to the most frequent cause of emboli, which is fat.

The typical case of fat embolism has been seen by most of you. It occurs with: A fracture or late manipulation of a fracture, a sudden pain in the lower chest often associated with dyspnea and usually with fever from 101-103, sometimes with moist rales in the area of pain. Recovery may result in 36 to 48 hours unless also there is hemorrhage from kidney and unconsciousness for longer or shorter periods perhaps leading to, sudden death in convulsion or slow death from a pneumonia.

Pathologically, fat embolism was described by Zenker 70 years ago. It is our most common type of embolism. The first observations of fat emboli were made after fracture of long bones. Factors involved here are: Gaping of the veins and crushing of fat. The veins tend to remain open and with advancing age or with trauma the fat become more liquid. The pressure of hemorrhage hastens the liquification of the fat. Hence, fat embolism is influenced by: Presence of fat in the bone marrow, amount of fatty substance liberated by trauma, the consistency of the freed fat, the extent of tearing of the veins in the bone involved and its marrow, and the rapidity and extent of the hemorrhage.



Recent investigations have shown that fat emboli also may arise from bruises.

The following are the findings and conclusions of Miloslavick of Wisconsin, who made 22 autopsies where death was caused from auto accidents. In all cases there was fat in the lungs. Sometimes the whole lung was plugged in the capillary system. The cases of isolated fractures with profusely scattered bruises showed most pronounced fat embolism. Many cases of multiple fractures showed only a small amount of fat. There was some fat in the lungs in cases in which death was almost instantaneous and in some cases in which death was delayed a few hours. In addition to the fat there was an edema with petechial hemorrhages about collections of fat globules. This may explain the pneumonias, perhaps the so-called ether pneumonias. In only two cases was death due to pulmonary embolism; the cause was usually cerebral.

Two Germans, Flick and Traum, have done some very good work on fat emboli: Starving dogs were etherized and blood drawn from the femoral artery and vein and analyzed for fat, then the bones of these extremities were broken against a sharp object and again the blood was withdrawn at regular intervals. In 10 minutes there was a rapid increase of fat in the artery and later in the vein. In another experiment five c.c. of dog fat was injected at the site of the fracture. There was fat in the venous blood in the first one in 10 minutes, and later in arterial blood. This dog developed pneumonia and died nine days later. Fat was found in the lungs, kidneys and heart. Many attempts were made to correct this fat storm. Some were unsuccessful. Pituitrin was used in good sized doses with a good effect within three hours by Roab. Flick and Traum used pituglandol intravenously. (They needed only one-seventh to one-tenth the volume for the same effect as pituitrin.) The result was a rapid fall of blood fat which remained permanent.

So far, I know of no reports of this treatment on man. Perhaps some better substance than pituitrin can be developed. The most likely source is from the intermediate lobe of the hypophysis. If you and I show our interest in this, research will receive a much needed impetus.

Lehman of Virginia and McNuttin of St. Louis took 50 unselected cases for autopsy of

the lungs and found: Definite fat embolism in over 50 per cent, no history of trauma in 50 per cent of these, and a few cases with trauma showed no evidence of fat emboli, but there was fat embolism in the majority of cases subjected to trauma or operation. Their conclusions were that fat embolism is common in terminal conditions—traumatic and non-traumatic.

My attention was directed toward emboli three years ago by a series of such cases which occurred. These made me recall others and I began to wonder whether I was using the best methods to prevent deaths from emboli.

When I was an interne I gave a light anesthesia to a young woman who had an abscess just under the sternocleidomastoid muscle on the right side of the neck. Another interne incised the tumor mass and almost instantly the patient turned pale and died. Since that time I have never given a general anesthetic to open an abscess of the neck, thinking it was a vagus reflex. I know now that I was wrong.

There have been cases of collapse and death following the opening of peritonsillar abscesses. A friend of mine had one, so since that time I do not open widely with a knife but use a hemostat. In this procedure I was right but I did not know why.

I removed an appendix under local anesthesia in a lady of fifty-five. Another member of her family had died suddenly following an operation so I kept her very quiet and in bed for 12 days. She went home on the 14th day and died suddenly while sitting in a chair on the 16th day after the operation. Her convalescence up to this time was uneventful.

Two days after a serious auto accident, I attempted to reduce a comminuted fracture of the lower end of the femur. The patient became dyspneic, fever rose in a few hours to 103.5 and the right lung was filled with rales. The patient, who was 70 years old, eventually recovered, but was very sick and has a short leg today because I was afraid to manipulate further.

Soon after this I saw a lad of 14, thin and poorly nourished, who had been kicked by a horse five weeks previously and had suffered a comminuted fracture of the left tibia and fibula, which was exceedingly difficult to reduce. While changing the splint in the morning he became faint and weak. His pulse was

120 and of very poor quality. The parents were told that he might die suddenly. He died at 11 p.m. that night. From the first he should have had heat, light, stimulation for the general circulation and some exercise and pituitrin (Obst) by hypodermic every four hours.

The next morning a Mexican of 60, who had had a fracture of the right hip six months before, was found dead in bed. The history of the case disclosed an impacted fracture which was in a cast for two months. He had a swelling of the whole limb and I kept him in bed for some time, finally getting him up upon advice of a consultant. He began to walk about of his own accord. A pain developed in the right lower chest at 10 a.m. and he spit up blood. His fever was 101 but he seemed better the next day. At nine p.m. he was passing bloody urine. He was given a drink at 4:20 a.m. and was found dead at five. This is a typical picture of generalized fat embolism with death due to a coronary embolus.

I curetted a woman of 23 for an incomplete abortion. She bled considerably at first and while on the table her pulse changed from 80 to 124 and remained so. The next day she developed a sharp pain in her right chest and she became dyspneic. Her uterus tended to be atonic. The treatment for her should have been pituitrin and ergot.

I have seen two cases of peritonitis become unconscious and later recover. I performed a hysterectomy in a very obese woman. She had a fever of 104 the next day, became dyspneic and grew progressively worse.

I removed a gall bladder and appendix in an obese woman of 40. That night her temperature was 103 with a rapid pulse. She chilled several times and nothing relieved her. She became unconscious and died 52 hours after the operation. No symptoms existed of pneumonia and she was never rational. This was due to fat embolism.

Recently, I have had a hip fracture in a woman of 78. She had pituitrin for 12 days—good recovery.

A cowboy had a crushed chest—third day fever, expectoration pain. This subsided promptly with pituitrin. I am waiting until symptoms arise and using pituitrin. I believe it is scientifically correct. I am proving my point this way instead of by series.

In conclusion I feel sure that you have all

seen patients suffer with, and some succumb with, emboli. Possibly you have seen the patient who seemed to suffer from a silent fear of operation with a facies (pinched), but no fever and no increase in pulse. Perhaps he is really sick, if he belongs to the "resistant group." This is the type I have seen suffer from thrombotic emboli. People can recover from air emboli if well treated and they die without it. Fat embolism is very prevalent especially among the severely injured and the aged. Pituitrin helps and cures. I hope that you and I will be able to analyse sudden surgical conditions definitely such as emboli into pulmonary, coronary or cerebral locations, taking into consideration the treatment and prognosis and deciding whether it is thrombi, air or fat.

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## CONDITIONS ASSOCIATED WITH SPLENOMEGALY

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By J. H. MUSSER

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The spleen is one of the most interesting organs of the body, an organ which apparently plays a definite part in the human economy, but which is non-essential for the maintenance of health and well-being, as was known by the ancients who removed the spleen of their Marathon runners to improve their wind. Apparently splenectomy exerts, in so far as experimental efforts can determine, only an effect on the blood and on the red cells. A good many years ago I had the opportunity of following a woman whose spleen had been removed because of a cyst. It was noted persistently and uninterruptedly as long as this patient was observed that her blood count never returned to normal. This observation led to a study of the effect of splenectomy on the blood count of the experimental animal and the effect that this procedure had on the animal in various hematologic, immunologic and biochemical ways. A large amount of experimental work was conducted over a period of some years in Pearce's laboratory. I had the fortunate opportunity of participating in much of this work.

The anemia that develops after splenectomy is immediate, reaches its height in three to six



weeks and, in the dog, the count returns to normal in five to 10 months. With this anemia there is noted an increased resistance of the red cells to hypotonic salt solution. The animal whose spleen has been removed, if subjected to experimental anemias, does not regenerate red cells as promptly as does the normal. In the dog accessory spleens are common, almost invariably found, and in the dog that has been splenectomized a long time the accessory spleens become enlarged and apparently take over the functions of this organ. It is known that the spleen may aid in regeneration of blood cells as substantiated by the observation that in certain severe anemias areas of myeloid cells may be found in the splenic pulp (Boyd).

The spleen has other functions besides that of hematopoiesis. Barcroft has shown that one of its most important purposes is to act as a great storehouse for blood. He has shown, under certain physiologic and pathologic conditions, that the spleen undergoes great change in size, so much so that he estimates it is capable of storing one-fifth of the total blood volume. After violent exercise the spleen that is lying outside of the body, the exteriorized organ, can be observed to shrink very considerably in size. The same change in content takes place immediately after hemorrhage, in asphyxia, carbon monoxide poisoning and during pregnancy. The spleen, then, acts as a reservoir for blood and when there is a sudden demand for more blood it supplies it. The amount it can deliver is relatively slight, but as Barcroft shows, the addition of only a small amount of blood is capable of increasing markedly the circulation rate. He demonstrates that roughly 20 cc. of injected blood will produce an increased flow of 200 cc. per minute around the body. It can be seen then that there is a pronounced augmentation of the amount of functioning blood whenever a relatively small amount is added to the circulation.

The spleen, the largest organ in the reticulo-endothelial system, necessarily plays an important part in immunologic processes. This may be the explanation in the increase in size that takes place in bacterial diseases. The spleen also has the property of acting as a filter for the iron from destroyed red cells, retaining it and it probably also filters out bacteria.

If the spleen can change so markedly in size

under physiologic conditions, equally so is it capable of changing size in innumerable pathologic disorders. Normally weighing 150 grams, under the influence of certain infections, it may obtain a weight triple or quadruple this figure. It is said that it does not become palpable until it has obtained a size three times the normal. It is possible, however, to judge of a slight enlargement of the spleen by percussion. It is difficult and often impossible to get the lower border of the spleen by percussion because of the occluding tympany of Traube's semi-lunar space. The upper border, however, in the mid-axillary line can be percussed and determined in the great majority of instances. If the percussion dulness is one to three cm. above the ninth interspace in the mid-axillary line it is excellent evidence that the organ is enlarged. The spleen is so closely interrelated with disease that Krumbhaar states that in 10,000 autopsies at the Philadelphia General Hospital the spleen was found to be sufficiently abnormal in 95 per cent of the cases to be listed in the autopsy protocol.

The spleen has been referred to colloquially as the graveyard of red cells. This particular function of the spleen may be through its possible internal secretory function. Certainly there is a definite relationship between congenital hemolytic jaundice which can be cured by the removal of the spleen and this rather nebulous function which has not been demonstrated entirely satisfactorily either by clinical or experimental methods. Another expression of a presumable dysfunction of the organ, in which there is excessive destruction of blood platelets, is seen in thrombocytopenic purpura which may be cured by splenectomy.

#### CLASSIFICATION OF THE SPLENOMEGALIES

I have attempted to draw up a classification, of splenic enlargement based upon the underlying pathogenic processes, which is in part original and which in part is based upon the efforts of others. I make nine general classifications as follows: I. Acute bacterial infections—typhoid fever, undulant fever, tularemia, subacute bacterial endocarditis, tuberculosis, abscess, septicemia and other infectious diseases; II. acute animal parasitic disorders—malaria, syphilis, uncinariasis, and kala-azar (the leishmaniasis); III. chronic infections—tuberculosis, malaria, syphilis, subacute bacterial endocarditis, and amyloid disease; IV. mechanical—

portal obstruction, from chronic heart disease, chronic lung disease, and cirrhosis of liver, polycythemia from erythemia and congenital heart disease, torsion of splenic pedicle and thrombosis of splenic vein; V. blood diseases—associated with anemia from pernicious anemia, splenic (Banti's) anemia, hypochromic anemia, sickle cell anemia, and Hodgkin's disease; associated with leukocytosis from chronic leukemia and acute leukemia; associated with increased fragility of red cells from chronic hemolytic jaundice; and associated with platelet reduction from thrombocytopenic purpura; VI. disorders of reticulo-endothelial system—Gaucher's disease, Nieman-Pick's disease and reticulo-endotheliosis; VII. deficiency diseases—rickets; VIII. cysts—simple, parasitic, and neoplastic; and IX. neoplasia—sarcoma, angiosarcoma, and secondary metastasis.

#### DISCUSSION

In many of the above mentioned conditions enlargement of the spleen is of considerable diagnostic importance; in others the importance of slight or even considerable splenomegaly is of no special moment.

#### ACUTE BACTERIAL INFECTIONS

In acute infections the spleen is enlarged in practically every instance. The three conditions of greatest frequency at the present time in which it is enlarged are typhoid fever, undulant fever and tularemia. In subacute bacterial endocarditis the spleen may be enlarged as part of the picture of the septic process. At times it may undergo marked enlargement as a result of an embolus with subsequent infarction of the occluded area.

#### ACUTE ANIMAL PARASITIC DISORDERS

In animal parasitic disorders only the most important have been enumerated. Those who are familiar with tropical medicine state that in practically every acute parasitic disease, systemic in nature, the spleen is enlarged. In uncinariasis the enlargement of the spleen is usually not pronounced unless there is a high degree of anemia. In acute syphilis the spleen is enlarged but the enlargement is of more importance in the chronic infection which syphilis becomes sooner or later.

#### CHRONIC INFECTIONS

In the chronic infections enlargement of the spleen may be a part of the general systemic reaction. It is of minor moment, but occasionally in tuberculosis there occurs a large single

tumor growth in the spleen which is spoken of as a tuberculoma. Bacterial endocarditis may be chronic as well as acute. The spleen may be enlarged in syphilis as a result of fibrotic changes occurring at the same time in the liver because of the single, or multiple gummata. Amyloid disease is extremely rare nowadays and the spleen in this condition develops the amyloid state as a result of some type of chronic, usually tuberculous, infection elsewhere. Of extreme importance is the enlargement of the spleen in chronic malaria. Often the organ is so enlarged and so much pathological change has taken place that it does not diminish in size even if the patient is cured by quinine. It may become a problem to be alleviated by surgical measures.

#### MECHANICAL

These conditions depend upon a damming back of the blood into the spleen as a result of partial venous obstruction which occurs in chronic heart and lung disease and liver cirrhosis. In polycythemia the swelling of the spleen is due to the increased blood mass and hence literally is mechanical. The factors responsible for the increase in the blood mass may be entirely different but the resultant enlargement of the spleen depends upon the same fundamental cause. A movable spleen sometimes twists on its pedicle and produces a considerable degree of congestion without death of the organ. This happens occasionally in splenic ankylosis; more generally it is likely to depend upon disruption of the spleen from its bed as a result of increased size. A spleen twisted on its pedicle is usually a spleen which is diseased. Thrombosis of the splenic vein rarely occurs.

#### BLOOD DISEASES

In the anemias enlargement of the spleen is common. The enlargement, however, is usually minimal and of no particular diagnostic nor prognostic significance. An exception is that in Banti's disease the spleen may reach a great size. It is important in conjunction with this disease to bear in mind the possible pathogenetic relationship between the enlarged spleen and the disease itself. It hardly seems worth while to more than mention in passing the tremendous enlargement of the spleen that takes place in leukemias. The organ sometimes obtains a size which is perfectly enormous. The only comment that seems of moment in regard



to this splenomegaly is to not touch the spleen surgically; depend upon radiotherapy to reduce its size. One of the most interesting types of splenomegaly occurs in the condition of chronic hemolytic jaundice in which the spleen plays a distinct role in etiology. In this condition in which there is a marked increase in the fragility of the red cells to hypotonic salt solution, splenectomy is curative. In Hodgkins' disease enlargement of the spleen is, as a rule, not of great importance but the disconcerting occurrence of the so-called splenic Hodgkins' without glandular enlargement elsewhere presents a diagnostic enigma which requires considerable skill in solving. The condition closely resembles Banti's disease.

#### DISORDERS OF THE RETICULO-ENDOTHELIAL

This system, known only in the last 20 years, has as its most important organ the spleen. There are a few pathologic conditions which involve this system expressed notably in splenomegaly. These conditions are extremely rare and hence are not of primary importance. The occurrence of a big spleen in childhood associated with marked anemia, a definite leukopenia and pigmentation of the skin and conjunctiva, will indicate that Gaucher's disease is present. Nieman-Pick's disease is similar. The enlarged spleen, the palpable liver, and the anemia of Nieman-Pick's give the picture somewhat resembling Gaucher's, but with leukocytosis and not a leukopenia. The condition is not benefited by splenectomy.

#### DEFICIENCY DISEASES

The only deficiency disease of moment that is associated with enlargement of the spleen is rickets.

#### CYSTS

Cysts of the spleen may be simple, parasitic or neoplastic. Parasitic or neoplastic cysts are associated with hydatid disease or malignancy. The nonparasitic or simple cysts may be unilocular or multilocular and may arise from simple trauma, or may have a more complicated genesis, such as involution of the peritoneal endothelium.

#### NEOPLASIAS

The usual cause of neoplastic enlargement of the spleen is from carcinoma elsewhere—the primary site usually being a breast. Primary neoplasm is uncommon. The primary neoplasms, according to Krumhaar, are sarcoma, lymphosarcoma and retothelial sarcoma.

#### SUMMARY

Splenomegaly is of considerable diagnostic importance. The finding of an enlarged spleen in certain infections helps to clear up the diagnosis. Enlargement of the spleen can never be said to be pathognomonic except in certain disorders. The relation of the spleen to certain diseases need not be stressed here, but the influence that splenectomy plays in some disorders exemplifies beautifully the important role the spleen may play in the pathogenesis of disease. Occasionally an enlargement of the spleen may explain a rare or unusual condition; occasionally it happens that unusual subjective complaints may be based upon enlargement of the spleen which may be the first indication of underlying disease.

It is advisable always to determine whether or not splenic enlargement is present when making physical examination of a sick person.

## VAGINAL HYSTERECTOMY, CLAMP METHOD

By DR. J. W. KENNEDY  
Philadelphia

(Excerpts from address before the New Mexico State Medical Society, 52nd Annual Meeting, Nov. 19-24, 1934).

I cannot more forcibly introduce this subject to your association than to quote the first words I heard my old master, the late Joseph Price, say 30-odd years ago concerning the procedure.

He said vaginal hysterectomy, clamp method, has the broadest field of usefulness of any pelvic operation, has the lowest primary mortality of any operation in surgery and has the best postoperative history of any operation of my knowledge.

Could any operation be better introduced and yet as I watched this great surgical genius perform this operation, I marvelled why so great a master of surgical technic would perform what seemed to be such an unfinished surgical procedure.

Ninety-five per cent of the hysterectomies in the Joseph Price Hospital for any condition where the removal of the uterus is indicated, are done by vaginal hysterectomy, clamp method.

The mortality from vaginal hysterectomy is

low; sudden deaths from embolus or acute cardiac conditions often follow removal of the uterus by the abdominal route.

We have never had a sudden death due to embolus or acute cardiac condition following vaginal hysterectomy during its 50 years use in the Joseph Price Hospital.

It was the sudden deaths incident to the removal of the uterus from above, after the patient had made a perfect recovery from the operation, which drove us more and more to the vaginal route of removing the uterus.

Surgical tragedies have never followed our vaginal hysterectomies clamp method, and the operation has the lowest mortality of any major operation in the entire field of our surgical experience.

If two series of cases are turned over to two operators of equal ability, all cases being accepted for vaginal hysterectomy, where such operation is possible by one surgeon, and the other operator resorting to the abdominal route of removing the uterus, the series of cases by the vaginal route will have one-tenth the death rate of the abdominal. The large, fleshy women, weighing from 175 to 225 pounds, with cardiorenal symptoms, will give a frightful mortality when the abdominal route is resorted to. Vaginal hysterectomy is profoundly indicated in all such patients.

Some of the indications for vaginal hysterectomy are: Procidentia, the abused cervix (badly lacerated, extensively eroded, multiple nabothian cysts and lurking malignancy), fibroid tumors where size does not prevent removal of the organ by the vaginal route, the extensively lacerated cervix in the woman over 40 with a degree or more of prolapse, all cases where the cervix has been amputated and the patient still complaining of local symptoms and malignancy of the uterus throughout the organ.

I have shown you a slide representing the abused cervix, abused from the standpoint of lacerations, erosions, multiple small nabothian cysts, and with possible beginning malignancy. These cases exist by the thousands. They are seen in women usually past childbearing and are typical indications for vaginal hysterectomy. In our opinion no other operation is indicated and thousands of lives can be saved (which would be lost by later malignancy), by

a procedure which has the lowest mortality of any operation in major surgery.

All fibroid tumors, the size of which does not prevent removal of the vaginal route, are easy victories for vaginal hysterectomy, clamp method. We take the position the fibroid tumor is toxemic in nature and this probably accounts for the many sudden deaths following removal of the uterus by the abdominal route. Indeed, deaths from this one tragic ending are greater from all causes than from vaginal hysterectomy, clamp method.

Procidentia, where the uterus is entirely protruding from pelvic location pulling the bladder and rectum along with the descending organ, is dealt with by vaginal hysterectomy, clamp method. At present, immediately following removal of the uterus, we make a blunt dissection by the finger of the bladder from the anterior wall of the vagina, remove a good-size "V" from the entire thickness of the anterior vaginal wall and place in a few silkworm gut sutures. This gives us the most ideal results.

If the rectocele is marked, it may also be dealt with at the same time by like suturing.

Excessive lacerations of the cervix in women over 40 with a degree of prolapse are easy victories for the vaginal hysterectomy and prevent later malignancy. Today the extensive use of the cautery has almost entirely placed repair of the cervix in the discard. The cautery has an excellent place in the pathologic conditions of the cervix, but I regret to see it replace repair of the cervix.

The trouble has been with the present day repair work that the surgery has been too superficial and done with material which is too early absorbed, resulting in utter failure in a large per cent of cases. Indeed repair of the cervix and perineum is a lost art.

The very low mortality of this type of vaginal hysterectomy permits the physician to advise the removal of the uterus from women of advanced age, and in the very poor risks of the over-fleshy women with cardiorenal symptoms.

For instance, we see a good number of very heavy women who are between 65 and 75 years of age bleeding from apparently a perfectly normal uteri, as the organs are small and with no external evidence of pathologic conditions.



These poor surgical risks are relegated to the watchful waiting list; yet many of them have malignancy of the uterine fundus and are easy victories for vaginal hysterectomy.

When one begins to discuss vaginal hysterectomy for malignancy of the uterus, opposition rages from all sources and the fight is on. I know of no condition in the broad field of surgery where wisdom is so violated as that which is shown in the teaching of the treatment of malignancy of the uterus and the insanity of uncertainty reigns supreme. When a condition is deluged with classifications and immersed in dos and don'ts, you can make up your mind that feeble advice is being given.

I know of no condition where prophylaxis and surgical privilege is more abused than that exhibited in the prevention and treatment of malignancy of the uterus. This discussion does not permit me to enter the broad field of prophylaxis of malignancy of the uterus, which, of course, is the most important factor in the treatment of the condition; but I demand the privilege to say that if the proper prophylactic steps were taken, such as obstetrics, proper repair of the lacerations and the pre-malignant condition of the cervix properly treated, malignancy of the cervix would practically vanish.

During my entire surgical experience in the conduct of the gynecological department of the old Philadelphia Dispensary, one of the largest gynecological dispensaries in this country, plus my experience in the Joseph Price Hospital and other hospitals, I have never had a case of malignancy of the cervix where I have been in charge of the patient and able to carry out prophylaxis and proper surgical care of the cervix.

This is the story we all can tell, yet today malignancy of the cervix is conspicuously on the increase, and I have never before experienced such a large per cent of late malignant conditions of the cervix and uterine body.

I am not going to quote any long table of statistics concerning this subject. In the first place from necessity they are most unreliable, as no two operators see the same type of cases as to stage of malignant involvement.

However, the world over, the big clinics report about 22½ per cent of patients living after five years, when all available means of

treatment have been brought into execution in the treatment of malignancy of the uterus.

Malignancy of the uterus has been classified into groups 1-2-3-4, depending upon the extent of apparent involvement, and again classified into groups 1-2-3-4 as to its radio-resistance or sensitivity. We are asked to base our advice as to treatment on ultra refinements in histopathology which few, if any, can do; is there any wonder that malignancy of the uterus is on the increase? Relegate common sense to the background and wisdom is challenged.

If there is evidence of malignancy of the uterus, what must be done? What is the popular teaching? Is the uterus to be removed as an abdominal operation as a panhysterectomy as is ordinarily done, or the more extensive procedure of Wertheim advocated; or may the organs be removed as a vaginal hysterectomy, ligature or clamp method? Or further, shall the cervix be amputated, cauterized or treated by electrocoagulation, or shall the popular treatment of radium and X-ray be used alone, or in combination with other procedures? Is there any wonder the general profession is confused as to remedy? It matters not what may be said, the teaching is what it is, as I have suggested, and results could hardly be worse.

How many clinics in America are prepared to classify the malignant involvements of the uterus into the proper columns based upon the extent and location of the malignancy and as to the histopathology whether or not the growth is radiosensitive or radioresistant. These uncertainties as regard treatment of malignancy or supposed uterine malignancy must be discarded and a more definite remedy chosen which can be placed in the hands of a broader and yet safe operating profession.

I do not hesitate to say that the last word in the treatment of malignancy, of any glandular organ which can be removed, will never be irradiation. In practically all cases of malignancy of the uterus seen in the Joseph Price Hospital, we are doing vaginal hysterectomy, clamp method. If the cervix is involved, extensive cauterization is first done, then vaginal hysterectomy, clamp method, is performed with as extensive removal of the vaginal fornix as is possible. This procedure is accessible to practically all operators. The operation is far more thorough than the pro-

fession has any knowledge. We use the clamp method altogether, as the clamps greatly increase the per cent of operability, and much increase the extent of tissue removed, as all the structures, the broad ligaments and tissues within the bite of the forceps will slough away and malignant tissue is in this way removed.

I have fully illustrated this clamp method of vaginal hysterectomy in a monograph entitled "Practical Surgery of the Joseph Price Hospital," and the slides which I have shown indicate the amount of slough of the broad ligaments which will take place incident to the crush by the clamps, and it is the proximal portion of the broad ligaments which are in the bite of the forceps which so often continue malignancy of the uterus after hysterectomy.

If the operator will examine the specimen after he has performed an abdominal hysterectomy for supposed uterine malignancy, even though an effort has been made to remove an extensive area of periuterine tissues, the specimen will reveal very little tissue external to the uterus has been removed and, after all, more or less dissection has been done with the structures which were supposed to be removed still remaining in the pelvis.

It is our opinion that the clamp method of removing the uterus is much more thorough from the standpoint of tissue removed than the abdominal operations which are being done, and has one-tenth the operative mortality.

The trouble is, the profession has not been taught vaginal hysterectomy, clamp method, and it is being condemned by teachers who have never seen a removal of the uterus with the clamps. I heard a prominent gynecological teacher say to his class, vaginal hysterectomy, clamp method, had been given up on account of its very high mortality and the difficulties met in performing the operation, whereas, with a lifelong experience with this operation we recommend it as having the lowest operative mortality of any operation in major surgery, and so it goes. There is many a surgical gem which blushes unseen.

During my early years association with Doctor Price, 95 per cent of the malignant uteri which came to his institution were at an op-

erable stage. In this same institution today I am seeing not over five per cent of cases which are operable. These cases come to the hospital today with a great dark crater in the vaginal fornix; there is no semblance of the cervix in many of the cases, yet we are living in the days of X-ray and radium.

I can touch only a few of the hundreds of important points which come up for discussion in this very important condition. I will sum up by saying:

We must advance as a solid phalanx for better obstetrics. We must prevent malignancy of the uterus by diligent care and treatment of the pre-cancerous lesions of the cervix and birth canal. In the treatment of malignancy of the uterus we must give the profession a remedy to which the greatest number have access. The remedy must be sufficiently thorough to cope with the condition, and it must have a low mortality primarily, in order that it may be resorted to early with little fear of outcome. A high operative mortality in any condition drives patients to a later operative hour.

In conclusion we recommend the simple cautery and vaginal hysterectomy, clamp method, for removal of the uterus in all conditions where such is possible and removal of the uterus is indicated.

It is my opinion that vaginal hysterectomy, clamp method, is the solution for malignancy of the uterus at this hour.

#### DISCUSSION

DR. WILLIAM HOWE, Las Vegas, N. M.: I have personally attended the Joseph Price Clinic on many occasions since 1906—at least for 40 weeks. Joseph Price died in 1912. Dr. Kennedy had been his assistant for 12 years. I have seen a great many of these operations. A year ago last winter I was in Philadelphia and saw a number of Dr. Kennedy's cases. I remember one morning he operated on three in succession and was not more than four minutes on any one of them. On another morning I remember sitting astride his chair, so near that I could have hooked my chin over his shoulder. I had my watch in hand behind him. He knew nothing about my timing him. He appeared not to be in a hurry and had no sudden burst of speed, but he did complete the operation in two minutes. 45 seconds, probably five times as quick as I could have done it. With this rapid easy procedure and the most complete work that can possibly be done in a hysterectomy, with so little trauma and death rate the other route, with



excessive trauma and prolonged anesthesia, suffer terribly in comparison.

DR. HARRY WEAR, Denver, Colo.: I wish Dr. Kennedy would kindly tell us how long he leaves the clamp on in these cases.

**CLOSING DISCUSSION BY DR. J. W. KENNEDY, ON VAGINAL HYSTERECTOMY, CLAMP METHOD:** In answer to Dr. Wear's question: We remove the clamps after 48 hours, first having removed the vaginal drains.

In several thousand cases we have had no serious hemorrhage following removal of the clamps; it is controlled by elevation of the foot of the bed and a hypodermic of morphine. Even if secondary hemorrhage comes from slough incident to the crush of the clamped broad ligaments, we have never had to do other than elevate the foot of the bed and give a hypodermic of morphine. For the past two years I have been unlocking the clamps for several hours; should hemorrhage occur, the handles may be placed on the clamps, relocking the same.

If the serrations in the jaws of the clamp are too deep, the tendency of the clamp to stick to one side of the broad ligament sometimes necessitates a good deal of traction on the clamp in order to remove it but if the instruments are unlocked for a few hours, the broad ligament retracts from the bite of the clamp and the instrument comes away very easily or may be found loose within the vaginal canal.

Doctor Howe speaks of seeing me do a vaginal hysterectomy in less than three minutes. A good per cent of vaginal hysterectomies, clamp method, may be done under five minutes and I have performed the operation in less than two minutes without any attempt to be fast. To brag about speed in surgery is to be common and inexperienced, but I mention the operating time with the teaching thought that the operation in a large per cent of cases is easily done has almost no mortality and yet is a very thorough removal of peritoneal tissue which is most exposed to extensions from malignancy.

The operation has the best postoperative history of any major surgical procedure of my experience. I have seen but one shocked patient, no sudden deaths from embolus or heart attacks which are often seen following the abdominal route of removing the uterus.

Today's surgery, especially in abdominal work has grown too dramatic, too many instruments used, too much done with the aid of the enormous abdominal retractors. The exaggerated Trendelenburg position has become too frequently a necessary position in abdominal surgery. In other words, the blow of surgery is being taken from the surgeon and placed on the patient. Too much is being said about the beautiful technique and bloodless surgery. Stick to your surgery but do not let your surgery stick to you, by which I mean, do thorough surgery and get through.

## **WHOOPING COUGH VACCINE DEFINITELY PREVENTS BRONCHIAL ASTHMA**

by

**Edgar B. Beaver, M. D.**  
**Aztec, New Mexico**

Early in October, 1933, I had occasion to administer whooping cough vaccine as a prophylactic measure to a number of children. Among the children thus treated, was a boy eight years of age, who had suffered frequent attacks of bronchial asthma since he was about a year of age. The mother of this boy noticed that he did not have even the slightest difficulty in breathing throughout the six weeks in which he received the whooping cough vaccine. The vaccine was continued in doses of one cc. each week with complete absence of asthmatic symptoms.

Four other patients were treated in the same manner with the same results, namely, total absence of asthmatic attacks as long as the vaccine was administered once a week. These patients ranged in age from two to 73 years, both sexes included.

The initial dose in all cases was 0.25 cc. gradually built up to 1.0 cc.; upon withdrawal of the vaccine the asthma returns at various intervals, 10 days being the shortest period after administration in which an attack appeared. This was in a girl age four.

Sibilant rales clear up entirely in the young patients, but not in the older patients. This fact may be due to the permanent pathology in cases of long standing.

We have no idea whether or not permanent immunity could be established against bronchial asthma, but feel that the matter should be studied.

## **PURPURA HEMORRHAGICA FROM FOOD SENSITIZATION; SUCCESSFUL TREATMENT BY DIETARY REGULATION AND USE OF DIGESTANTS.**

(Case Report)

by

**ORVILLE HARRY BROWN, M. D.**  
**Phoenix, Arizona.**

A case of purpura hemorrhagica caused by food is herein reported.

An adult woman observed bloody stains upon her pillow, and small reddish hemorrhagic

spots generally over the body; more on the legs than elsewhere, increasing gradually in number toward the feet, which were almost a solid mass of punctate reddish spots except where the slipper straps had made pressure. Here and there about the body were several dark colored areas, one to two inches in diameter, from hemorrhages beneath the skin.

The next morning she had more reddish spots on the body and blood seepage from the nose and gums. The gums were extremely sore.

There was persistent slow bleeding from the gums throughout the next 48 hours; many clots of blood came from the nose for the next three to four days.

The immediate pertinent history is that for two days previous to the appearance of hemorrhages she had eaten freely of raw ripe apricots. There was nothing else, in the history that could be elicited by careful questioning, that seemed to offer a clue as to the etiology of the purpura.

She had been affected similarly in the spring of 1911 though much worse. The hemorrhages continued that time for weeks and she was in poor health and extremely weak for about a year thereafter.

In 1923 and again in 1925 she had similar, but milder, attacks. At other periods there have been slight attacks, but not definite enough for her to fix the dates. Each time she has had the condition, there has been a tendency for it to persist for weeks or even for months.

This patient has had the habit, all her life, of eating freely of fruits and vegetables; she believes the raw product is preferable to the cooked. It was her recollection that at least certain of her attacks came at the time that apricots were ripe.

Treatment consisted in putting her upon a strict diet with all foods thoroughly cooked; she was to avoid the foods which she had been accustomed to eating in large amounts; and she was given acids with her food. Except for one slight increase in the bleeding from the gums, which we reasoned out resulted from eating swiss chard two days in succession, her recovery was uneventful; within about two weeks absorption of the discolored areas had occurred and she seemed entirely well of the purpura attack. In the four years since she has had no return.

I have observed other patients, under treatment for various sensitization conditions, in whom there had been the so-called "black and blue" spots of the sub-cutaneous tissue; under treatment for allergy these spots disappeared and seemed less likely to form.

This case substantiates Eyermann and Alexander's observation regarding the food sensitization origin of purpura hemorrhagica and proves the value of treatment of food sensitizations through diet regulation and the use of digestants.

1. Alexander, Harry L., and Eyermann, C. H.: Allergic Purpura; *Journ. Am. Med. Assn.*; June 22, 1929, 13: 2092.

## PUBLIC HEALTH NOTES

J. ROSSLYN EARP, DR. P. H.  
Director of New Mexico State Bureau of  
Public Health.

### STATE MEDICINE

Following is the newspaper article which recently incurred the severe censure of the president of the Bernalillo County Medical Society in the columns of this journal:

**Impetigo:** Those nasty sores, covered with a yellow crust, which spread upon the hands and faces of the children and will not heal, are called impetigo. They look ugly, they feel horrid, but they do not make one very sick. They are highly contagious, but the disease is not severe enough to be made reportable.

Thus we do not know whether impetigo has really spread or how much it has spread in this year of drought. But we have suspicions. Soap and water are great enemies of impetigo and this year in New Mexico there are communities that can get soap a good deal more easily than they can get water. One public health nurse writes of a village whose people must walk four miles to the nearest spring when, as now, their cisterns are empty. Impetigo is rife among them.

There are three rules for avoiding impetigo; (1) Keep the skin clean with soap and water; (2) keep the skin whole, free from cuts and scratches; (3) keep away from the germs; avoid those who have impetigo and the things they touch, particularly towels.

To cure impetigo the germs causing it must be reached. The crusts are in the way and must be soaked or pulled off (once or twice a day). The standard ointment for killing these germs is ammoniated mercury. Most other ointments are useless. In some cases it is better to use a liquid antiseptic than an ointment. If you can get a doctor's advice he will tell you the best thing to use in each particular case. Medical recipes cannot be compiled like a cook book because human beings are so much more variable than ovens.

If there are several cases of impetigo in your school or community ask for the help of the county health officer or the public health nurse.

After reading this, perhaps rather hurriedly

1. Rogers, H. E.; *Medical Economics*; *Southwestern Medicine*, 19:35 (Feb.) 1935.



Doctor Rogers writes: "Dr. J. R. Earp . . . ends his article by advising his readers who are suffering from this, or similar skin diseases to see not their private physician, but their county health officer or nurse. Another straw! a total disregard of the good old stand-by—the General Practitioner!"

I have reproduced the article at length (1) as being the simplest way of acquitting myself of this charge and (2) as an illustration of how sadly we may misunderstand each other unless we believe fully in each other's good intentions.

The last sentence of the article states quite simply that if a contagious skin disease exists in a community in epidemic proportions the health authorities should be asked to fight it. Positively that is all that the sentence is meant to convey. The health officer and the nurse, if they take my advice, will not only refrain from treating private patients of a doctor but, supposing that a doctor is available, they will do their utmost to increase the number of his private patients. However, there are plenty of small communities in this state where no medical aid for impetigo is available (only about one-half of the death certificates in New Mexico are signed by physicians). In these communities it will be the duty of the nurses to do the best they can without medical aid. Does anyone object?

I cannot grumble. I have published nearly two hundred of these newspaper articles and this is the first, so far as I know, that has been under fire from the profession.

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**Health District Act:** The Health District Act adopted by the New Mexico legislature divides the state into 10 health districts, each of which is placed in charge of a full time health officer. Each district contains from two to four counties—around 40,000 population. County health departments will remain as at present; commissioners may appoint deputy health officers—one for each county. The district health officer will, however, be responsible for planning and coordinating all the public health activities in his district.

The 10 district health officers who will be appointed before July 1 must have resided for at least two years in New Mexico. They must either (1) have postgraduate degrees in public health or (2) have had experience as full time

health officers or (3) pass a qualifying examination. An eligible list is being compiled at the State Bureau of Public Health and this list will be submitted to the district health boards who make the appointments subject to approval by the State Board of Public Welfare.

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**Toxoid Abscess:** Nine children, aged two to seven, out of 350 to whom alum toxoid was recently administered in Mora county, developed sterile abscesses with necrosis. A similar experience is reported from San Juan county, apparently through toxoid bearing the same serial number of the same firm as the one used in Mora county. The incident is at present under investigation in the National Institute of Health.

Previous investigation of similar reactions in the past has indicated that the trouble is chemical rather than biological. The children who develop these abscesses are less likely to gain immunity than those who suffer no reaction. The abscesses, though unpleasant, are not dangerous, and the distribution of toxoid liable to cause them has been so small that the use of alum toxoid as a prophylactic should not be discredited. No doubt more exact knowledge of the chemical stimulus will soon be forthcoming and a test will be available which will eliminate all future hazard.

These reactions are not to be confused with severe local reactions that may occur in other children or adults with any form of toxoid. The danger of such reactions can only be averted by preliminary intracutaneous tests.

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## AMERICAN MEDICAL GOLFERS

For 21 years the golf enthusiasts of the American Medical Association have had annual tournaments. This year they will play 36 holes at Atlantic City on Monday, June 10; 70 trophies and prizes will be awarded; a special event for fellows over 60 years of age, is planned.

All fellows of the American Medical Association are eligible to become members of the American Medical Golfing Association. The executive secretary, Bill Burns, 4421 Woodward Ave., Detroit, will be glad to supply application forms.

# Southwestern Medicine

Printed by THE A. C. TAYLOR PRINTING CO., Phoenix, Arizona  
Published monthly for the Board of Managers of the four constituent societies.

VOL. XIX.

APRIL, 1935

No. 4

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## INIMICAL MEDICAL LEGISLATION IN ILLINOIS.

A bill is now pending in the Illinois State legislature which would permit corporations to practice medicine, and this in turn would cause a "cash and carry" system of medical practice to develop. Corporations not having souls are consequently void of ethics. If the proponents of this bill succeed in placing it on the statute books in Illinois, it would soon be attempted in other states. Physicians will be found who will work for relatively small salaries. The corporations will advertise. It is easy to imagine the extent to which quacking might go as a result.

## "SCHOOLS FOR SCANDAL"

The New York State Journal of Medicine under the above title contains an editorial in which the report is made that a concerted campaign is being made against schools which are conferring degrees unauthorized by the legislature. Several schools of chiropractic and naturopathy have openly flaunted the statutes for years. The notorious Benedict Lust, head of the School of Naturopathy, is one of the defendants. In order to circumvent this prosecution the cultists have introduced a bill into the legislature authorizing the establishment of colleges of "natural therapy." The curriculum certainly should give the readers of Southwestern Medicine at least a smile. Among the subjects taught are the following: cibology, hirudology, clysmology, laxatology, potiology, rotology, and electrolysis. The prediction is given that the bill will not pass.

## ANNALS OF MEDICAL HISTORY MAY SUSPEND PUBLICATION.

For some years Paul B. Hoeber has published under the editorship of F. R. Packard the **Annals of Medical History**. In a recent editorial it was stated that unless there are more subscribers it may be necessary to suspend publication. The **Virginia Medical Monthly** is appealing to the editors of the various journals to put this matter before the readers editorially and to urge individuals and organizations to be subscribers to the **Annals**.

We should like to have at least three members in each state or three libraries or three county societies in Arizona and in El Paso county and in New Mexico and in Old Mexico subscribe to this splendid journal. It is realized that if the **Annals** suspends publication it will likely be many long years before a publisher of sufficient courage will be found to undertake a similar project. The cultural side of medicine will have lost tremendously if Mr. Hoeber is compelled to suspend publication of the **Annals of Medical History**. Will the Physicians of the Southwest help to prevent such a loss?

## DR. F. C. WARNSHUIS

The following about one of the guest speakers for the Arizona State Medical meeting may be of interest to those who do not personally know him:

"The speaker, Dr. F. C. Warnshuis, is the best presiding officer I ever saw, bar none. Entirely familiar with the intricacies of parliamentary practice, with unfailing courtesy, a keen sense of humor, and with absolute fair-



ness to all, he was master of every situation that arose, and under his guidance the House accomplished a tremendous amount of work in a short time." (Southern Medicine & Surgery, 97:158; March, 1935.)

### NEW MEXICO ANNUAL MEETING

The date carried on the top of the cover of Southwestern Medicine last month for the **Annual Meeting of the New Mexico State Medical Society** was wrong. Please note it is **May 23, 24 and 25**. This program will be carried next month.

### NEWS COLUMN

In the last two issues of Southwestern Medicine we called attention to the value of a News Column if the members will only take sufficient interest in it to send us personal items of themselves. Of the several items included in this month's News Column one was contributed by the physician himself. The others were gathered by the editor.

Again we beg you to **lay modesty aside** and tell us what you are doing and what is happening to you. Your confreres will be glad to have news of you. The future historians of Medicine in Arizona will find the News Column of material assistance.

### INDEX FOR VOLUME XVIII

There is available for those who are keeping complete files of the journal an Index for Volume XVIII. If you have not received one and wish it, a card to the editor will bring it to you.

### PROGRESSIVE EL PASO COUNTY MEDICAL SOCIETY

The El Paso County Medical Society has taken a forward step in providing for medical care for the indigent and the low income groups. We have not been privileged to see the draft of their plan as yet. We believe that it must be a step in the right direction. Probably in the near future we shall be able to discuss this more intelligently and adequately.

The minutes of the meeting in which the society decided to adopt this plan will be found in another column of this issue.

### ARIZONA PUBLIC HEALTH ASSOCIATION

The **Arizona Public Health Association** will meet in Phoenix April 23 and 24. A glance at the program indicates that it will be a most profitable meeting.

We are informed that physicians are welcome at any or all of the meetings.

### ANNUAL MEETING OF AMERICAN PUBLIC HEALTH ASSOCIATION

The 64th Annual Meeting of the Public Health Association will be held in Milwaukee October 7-10, 1935. Workers numbering about 4500 compose this organization. Recent developments in health protection, promotion of policies and future expectations will be discussed.

We are of the opinion that it might be well for the American Medical Association to have a number of representatives there to assist in the guidance of the policies of the Association so that they may not conflict with the future plans of organized medicine.

### NEWS

Dr. H. F. Laramore, graduate of the University of Texas in 1927, is locating in El Paso to practice the specialty of Obstetrics. After graduation and internship he practiced in Houston for two years and then had four years' post-graduate work in obstetrics, a year each in the Dallas Hospital, Presbyterian Hospital, Chicago, Vienna, and N. Y. Hospital. His office will be in Bassett Tower. The Southwest, especially El Paso and surrounding territory, is to be congratulated on having Dr. Laramore.

Dr. W. L. Reid, Phoenix, spent several weeks in Mississippi during February, having been called there because of the serious illness of his father.

Dr. Henry S. Denninger, Peoria, whom we mentioned last month in this column as having recently located at Peoria, has done considerable work in paleopathology. He is continuing his research on this subject and studying prehistoric American Indians. An article of his will soon appear in Southwestern Medicine.

Dr. O. E. Utzinger of Ray spent a few days the latter part of March in Phoenix.

Drs. Fred Holmes and Victor Randolph had an article on the use of pneumothorax in treatment of pneumonia in the **ANNALS OF MEDICINE** for March and Victor Randolph has an article on Intrapleural Pneumolysis in **Diseases of the Chest** for April.

James R. Moore, M.D., who has been superintendent of the Arizona State Hospital for the past two years, has been reappointed to this position by Governor Moeur for 1935-36. The following physicians with Dr. Moore complete the staff of the Arizona State Hospital: E. D. Berends, M.D., Carl Sugar, M.D., J. M. Sartin, M.D., and L. B. Stallcup, D.D.S.

Dr. M. I. Leff, Glendale, is so well informed upon the affairs of Europe that he is much in demand as a speaker before luncheon clubs.

Dr. Hugh Stanton, Arizona State Epidemiologist, is kept very busy traveling over the state in the interest of public health.

Dr. J. M. Pearson, Glendale, Ariz., has been presi-

dent of the Rotary club of that city for the past year.

Dr. Toler R. White, Kingman, secretary of the County Board of Health, has had to enforce a strict scarlet fever and measles quarantine in Kingman and Oatman. Even the schools were closed.

Dr. Cornelius O'Leary, formerly of New York City, now nearly a permanent resident of Arizona, addressed the Phoenix Lions club recently upon the subject of Mussolini.

## LETTER COLUMN

The following are excerpts from a copy of a letter to Arizona's Senators and Representatives:

It is my understanding that the President's Committee on Economic Security has at this time under consideration the question of health insurance, and will make a recommendation to the President thereover in the near future.

In behalf of the physicians of Arizona I wish you to have certain facts.

Organized medicine with 100,000 physicians on its roster believes: That Medical relief, especially for those with lower incomes, is necessary; that a system however that takes away the personal relationship between doctor and patient is not desirable; that control of any medico-social scheme should be in the hands of the profession both centrally and locally; that local problems should be solved locally with organized medicine in control; and that the use of a third party to any legislation passed would give percentages to outsiders which would take from the patients on the one hand and from the doctors on the other.

The only unpaid person in the so-called "free clinic" is the doctor; it is he alone who makes the free clinic of value; yet all other personnel from managers down to janitors receive compensation for their services. You can easily see from this that the money spent in any scheme, without medical control, will go to people who have not the knowledge or skill to do anything for a patient except to direct or coerce him to the clinic. The boast of free clinics is the increase of the number of patients from year to year; outside a man may be paid to take charge of the parking of the cars for the "poor" patients, so anxious are the "free clinic" sponsors to build up the free clinic. Relatively little effort is made to know that the patients are unable to pay for medical care from private physicians.

We cheerfully help in much community service, at the invitation usually of other social groups and, the subject of recompense is not discussed. School nurses and other nurses of a public nature do not hesitate to send children to physicians for care and advice and do not mention compensation, although they themselves are paid in full for their services. Again: We see that even professional people engaged in social service do not think that the profession should be consulted as to fees. It is seen, therefore, that any scheme without medical control will have, as the forgotten man, the doctor.

As to the regimentation of the profession: I am sure you would not wish to place us on the same scale as England where \$2.03 per year per person is all that is paid to panel physicians. Imagine what class of service you could expect. Maricopa county has 150 physicians and approximately 140,000 population. At the same rate we would receive \$1,860 a year for our services which would have to pay our transportation, our office needs, our instruments, our expensive apparatus, our laboratory service and x-ray machines, our necessary books

and medical magazines and then keep our families. I know you would not present yourself to so low a scale man for treatment, for he would be a fit subject for charity with a \$30,000 education and eight years of time for preparation under his hat and capabilities galore, but stunted by lack of food and the ability to make a living. For this reason, we do not go abroad or to England any more to study; the profession here leads the world under a competitive system that has just rewards.

I do know that you, as our Representative, would not pay your own expenses to Washington and do the necessary things there for such a salary. Were I to suggest such a ridiculous thing my sanity would be doubted. And yet Congress has many men in it who have had much less intensive training over fewer years and whose responsibilities at home and at Washington are not as exacting as is the practice of medicine. And yet, legislation to put such a profession in the lowest of low brackets is being presented. The President has truly claimed that an underprivileged class is those who receive salaries of less than \$2,000 a year. That such a class of the people are unable to live properly is his contention, and yet, we face the fact that we not only will receive less than this maximum of the underprivileged but will have to pay expenses of maintaining our offices as well as ourselves out of it.

Further: If you wanted the plumbing business co-ordinated, you would not send electricians to propound a solution, neither would you ask a lawyer to demonstrate a flying machine when he had never been interested particularly in aviation; at least you would not go up with one who had never been at the controls. Yet, the control of medicine is being placed gradually under political influence. Do not place at the controls in our air-machine of medicine those who have never learned to fly and expect the ship to land safely. So we state that any scheme to socialize medicine must have medical men at the controls.

In consideration of the bills in question, the profession of medicine in Arizona earnestly desires that you keep the facts in mind. With best regards, I am, very sincerely,

R. J. STROUD,  
Chairman of Committee.

## EL PASO COUNTY MEDICAL SOCIETY

(Reported by Dr. L. O. Dutton, Sec'y)

The El Paso County Medical Society met Feb. 25, 1935, at Hotel Hussmann in regular meeting at 7:30 p. m. The minutes of the last session were read and approved.

Dr. Frank Schuster reported a case of foreign body (nail) in the left bronchus of two years standing. There was abscess formation with infiltration of the lung. The nail was removed by bronchoscope and the child was making an uneventful recovery.

Discussed by Drs. Vandever, Gwinn, Laws, Egbert and R. B. Homan, Jr.

Dr. Vandever read a paper "Remarks on Eye, Ear, Nose and Throat Conditions."

Discussed by Drs. F. Schuster, Davis, Dutton, Gwinn, Vandever.

Dr. R. B. Homan, Jr. read a paper "Treatment of Tuberculosis in the Home."

Discussed by Drs. Egbert, Ralph Homan, McCamant, Laws and R. B. Homan, Jr.

Dr. Laws reported on a State Executive Council meeting held February 19th in Fort Worth. The purpose was to endorse the resolution of the A. M. A. house of Delegates opposing the passage of the Epstein bill relating to health insurance and



other similar measures. Dr. Laws read from a report of the A.M.A., showing the grave necessity of quick action on the part of the medical profession in an effort to forestall the threat of social medicine.

There was a general discussion of this topic. A motion by Dr. Green was passed unanimously endorsing the action of the Executive Council.

Dr. McCamant offered to distribute letters to all members of the society urging them to write our Congressmen and urge them to oppose certain social health features of the Wagner bill.

Dr. Egbert made a motion to devote the next meeting to a discussion of economic problems—passed.

A letter from Dona Ana County Medical Society, inviting the El Paso County Medical Society to meet with them at Radium Hot Springs was read. No official action was taken in regard to this, but sentiment expressed in general discussion was that the El Paso County Medical Society would be pleased to meet with the Dona Ana County Medical Society, but not at Radium Hot Springs. Dr. Stevens ordered the Secretary to communicate this acceptance to the Dona Ana County Medical Society.

There was general discussion of Dr. McCamant's report on the Toltec Club as a meeting place. Dr. McCamant said the second floor of the club is available with many advantages at the rental of \$75.00 per month. The question was not acted upon, but on motion of Dr. McCamant it was decided to hold the March 11 meeting at the Toltec club as guests of the Elks Club.

Applications for membership of Drs. Jordan, Spier and Causey were returned from the Board of Censors with endorsement and were accepted by the Society.

## EL PASO COUNTY MEDICAL SOCIETY

(Reported by Dr. L. O. Dutton, Sec'y)

The El Paso County Medical Society met March 11, 1935, second floor Toltec Club in regular meeting at 8:00 p. m.

The minutes of the last session were read and approved.

Report of Economics committee read by Dr. McCamant. The committee prepared a plan for the formation of a central medical bureau to handle indigent medical practice and part fee practice. The details of this plan are on record as a report of the committee. Dr. Ralph Homan moved to accept the report of the committee. Passed. Dr. J. A. Rawlings moved to send each member of the Society a copy of the plan—passed.

There was an active discussion of the plan by many members of the society. A motion was passed to hold a special meeting of the society on Monday, March 18, 1935, 8:00 p. m., to further discuss and pass upon the report of the committee.

Dr. Egbert read an urgent appeal for solidarity in the medical profession and a plan for "unionized" clinic somewhat following the lines of the plan advanced by the Economics committee.

Dr. R. B. Homan read a paper, "Roentgen Ray in Diagnosis of Childhood Type of Tuberculosis." Discussed by Drs. Laws, Strong, Egbert, J. A. Rawlings and J. Mott Rawlings.

Dr. Barrett reporting for the Board of Censors said no definite action had been taken in the case of "The Hermit."

A motion to rent the second floor of the Toltec Club for a meeting place was defeated. Adjourned.

## EL PASO COUNTY MEDICAL SOCIETY

(Reported by Dr. L. O. Dutton, Sec'y)

The El Paso County Medical Society met on special call Monday, March 16, 1935, 8, p. m., Nurses' Home Hotel Dieu.

Dr. Homan informally opened the discussion of the plan submitted by the Economics committee on the formation of a central medical service. Dr. McCamant brought further information concerning the San Diego plans and after general discussion, Dr. Laws moved that the El Paso County Medical Society adopt the plans of the Economics committee. This was seconded by Dr. Gallagher and passed unanimously. It was then decided informally to discuss and pass upon each section of the plan separately with the understanding that the approval or disapproval of the society regarding each section should be in the nature of a guide to the Economics committee for purpose of re-writing the plans.

Sections head Object and Ownership and paragraphs I, II, VI, VIII, XI, XIII, XIV, XV, XVII, XX, XXI, XXIII, and XXIV were adopted by the society. Sections IV, V, XVI, and XVIII were stricken out. Sections III, VII, XIX, and XXII were amended and adopted. Sections IX, X and XII were referred back to the Economics committee for re-writing.

Dr. Swope offered an amendment to the by-laws to provide for the election of a Board of Control for the operation of said plan, which is as follows:

The Board of Control of the Indigent and Part Pay Medical Service shall consist of three members. The first board shall be nominated by the Economics committee, and elected for a period of three years, one member being elected each year. The first board shall be elected by places; place I being executive officer and service shall be for one year; place II service for two years; and place III service for three years. The executive officer shall in succeeding years be the member whose last year of service it shall be.

It was moved and passed that the regular meetings be held at the Hotel Dieu Nurses' Auditorium medica with a brief discussion of their actions.

## HEADQUARTERS—HOTEL WESTWARD HO

April 25, 26, 27, 1935

Phoenix, Arizona

## PROGRAM

ARIZONA STATE MEDICAL ASSOCIATION



## ANNOUNCEMENTS

Registration headquarters will be at the Hotel Westward Ho. Every member, visitor and guest is requested to register promptly on arrival. Registration fee \$5.00. This entitles one to all entertainments, smoker, luncheons and banquet.

Scientific sessions will be held in the Hotel Westward Ho.

No address or paper before the Association, except those of invited guests, shall occupy more than twenty minutes. The opening discussions are limited to five minutes and general discussions to three minutes each. No one shall speak more than twice on the same subject.

Papers read before the scientific sessions shall become the property of the Association and shall be deposited with the secretary for publication in the official organ of the Association (Southwestern Medicine).

For the social entertainments, see the special announcements elsewhere in this program.

## OFFICERS

President:	
Meade Clyne .....	Tucson
President-Elect:	
C. R. K. Swetnam .....	Prescott
Vice-President:	
Orville H. Brown .....	Phoenix
Secretary:	
D. F. Harbridge .....	Phoenix
Treasurer:	
C. E. Yount .....	Prescott
Councilors:	
H. K. Wilson (Northern District) .....	Holbrook
Victor Randolph (Central District) .....	Phoenix
E. C. Houle (Southern District) .....	Nogales

## COMMITTEES

<b>Committee on Scientific Work:</b>	
C. R. K. Swetnam, Chairman .....	Prescott
Frank J. Milloy .....	Phoenix
W. W. Watkins .....	Phoenix
D. F. Harbridge .....	Phoenix
<b>Local Committee on Arrangement:</b>	
D. R. Gaskins, Chairman .....	Phoenix
E. Payne Palmer .....	Phoenix
George Thorngate .....	Phoenix
<b>Public Welfare Committee:</b>	
J. D. Hamer, Chairman .....	Phoenix
N. C. Bledsoe .....	Tucson
Howell Randolph .....	Tucson
George C. Truman .....	Phoenix
<b>Medical Economics Committee:</b>	
Orville Harry Brown, Chairman .....	Phoenix
J. B. Littlefield .....	Tucson
J. W. Flinn .....	Prescott
A. L. Gustetter .....	Nogales
William B. Watts .....	Miami

## Medical Defense Committee:

John E. Bacon, Chairman .....	Miami
R. D. Kennedy, Member .....	Globe
D. F. Harbridge, Secretary .....	Phoenix

## Southwestern Medicine:

W. Warner Watkins, Editor .....	Phoenix
Orville H. Brown, Associate Editor .....	Phoenix
Arizona Members of Board of Managers:	
Meade Clyne .....	Tucson
D. F. Harbridge .....	Phoenix

## SCHEDULE OF BUSINESS MEETINGS

### Council Meetings

Wednesday, April 24th—8 P. M.

### House of Delegates

Executive Session.....Thursday, April 25, 12:00 N.  
Open Session, Election, Saturday, April 27, 3:00 P. M.

### Members of Council

President—Meade Clyne .....	Tucson
President-Elect—C. R. K. Swetnam .....	Prescott
President-Past—N. C. Bledsoe .....	Tucson
Treasurer—C. E. Yount .....	Prescott
Secretary—D. F. Harbridge .....	Phoenix
John E. Bacon, Medical Defense .....	Miami
H. K. Wilson—North District .....	Holbrook
V. C. Randolph, Central District .....	Phoenix
E. C. Houle, Southern District .....	Nogales

### House of Delegates

Cochise County .....	2
Coconino County .....	1
Graham .....	1
Greenlee County .....	1
Gila County .....	2
Maricopa County .....	10
Mohave County .....	1
Navajo-Apache County .....	1
Pima County .....	7
Santa Cruz .....	1

# Convention Headquarters

for the annual meeting of the  
**ARIZONA STATE MEDICAL ASSOCIATION**  
Phoenix, April 25-26-27

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Yavapai County .....	2
Yuma County .....	1
Members of Council .....	9
Total .....	39

## PROGRAM

**Thursday, April 25, 9:00 A. M.**

- Invocation—Very Reverend Edwin S. Lane.....Phoenix  
 Address of Welcome:  
 Hon. Joseph S. Jenckes.....Mayor of Phoenix  
 F. T. Fahlen, President Maricopa Society.....Phoenix  
 Response—H. K. Wilson ....., Holbrook  
 Introduction of President-Elect—C. R. K. Swetnam  
 by President Meade Clyne ....., Tucson  
 Dr. George Thorngate, Phoenix, "Silicosis."  
 Discussion—Dr. J. E. Bacon, Miami.  
 Dr. David M. Davis, Phoenix,  
 Dr. John W. Pennington, Phoenix,  
 "Polycystic Kidney with Presentation of Cases."  
 Discussion—Dr. Wm. M. Schultz, Tucson.  
 Dr. H. M. Purcell, Phoenix, "Heat in Pelvic Inflammation, with Demonstration of Cheap, Efficient Apparatus."  
 Discussion—Preston Brown.  
 Dr. Frank S. Dolley (Guest) Los Angeles, "Present Status of Pulmonary Lobectomy for Bronchiectasis and Carcinoma."

### HOUSE OF DELEGATES

**Meet at Luncheon.**

**Afternoon Session**

Session on Medical Economics.

- Dr. F. C. Warnshuis, Speaker House of Delegates, A. M. A., San Francisco.  
 Address.  
 Dr. Rexwald Brown, Santa Barbara,  
 Address  
 Dr. J. B. Littlefield, Tucson,  
 "A Plan for Medical Care of Low Income Groups"  
 Dr. Orville Harry Brown, Phoenix,  
 A Report of the Medical Economics Committee.  
 Discussion will be opened by Dr. Meade Clyne and Dr. John W. Flinn.

**Friday, April 26th, 1935, 9 A. M.**

- Dr. J. C. Riggins, Tucson,  
 "Pneumothorax Treatment in Lobar Pneumonia."  
 Discussion—Dr. Fred Holmes, Phoenix.  
 Dr. Samuel H. Watson, Tucson,  
 Dr. W. R. Hewitt, Tucson,  
 "Curability of Tuberculosis of the Bowel."  
 Dr. John W. Flinn, Prescott,  
 "Calcium Metabolism and Its Role in the Healing of Tuberculosis and Other Diseased and Injured Tissues." (A Preliminary Report).  
 Discussion—(of above two papers)  
 Dr. W. W. Watkins, Phoenix  
 Dr. F. A. Willius (Guest) Mayo Clinic, Rochester, Minn., "The Physiologic Approach to the Treatment of Heart Failure."  
 Dr. E. W. Johns (Fraternal Delegate) Albuquerque, N. M., "Juvenile Osteo-Chondrodystrophies."  
 Discussion—Dr. V. G. Gare, Tucson.  
 Dr. Robert Flinn, Phoenix,  
 "The Medical Treatment of Gall Bladder Disease."  
 Discussion—Dr. R. A. Wilson, Tucson.  
 12:15 P. M.—Luncheon—to meet the entire staff of the Industrial Commission.

### Afternoon Session

- Industrial Relations Committee Session  
 2:00 Dr. Warner W. Watkins  
 "Bone Physiology in Relation to Traumatic Injuries."  
 2:20 Dr. E. Payne Palmer  
 "Bone Repair and Failure to Repair in Fractures."  
 2:40 Discussion of above two papers opened by Dr. R. O. Schofield, Boulder City, Nevada.

- 3:00 Dr. R. F. Palmer, Medical Advisor, Industrial Commission,  
 "Carpal Bone Injuries Industrially Considered."  
 3:15 Dr. William B. Watts, Jr., Miami-Inspiration Hospital: Review of Thirty-one Cases of Carpal Bone Injuries.  
 3:30 Dr. J. M. Greer,  
 "Treatment of Carpal Bone Injuries."  
 3:45 Discussion of above three papers opened by Dr. C. E. Yount, Prescott.  
 4:00 Dr. Meade Clyne, Chairman: Annual Report of Industrial Relations Committee.  
 4:20 Mr. C. Leo Gynn, Claims Manager, Arizona Industrial Commission: "Industrial Relations Problems."  
 4:40 General Discussion.

**Saturday, April 27th, 1935—9 A. M.**

- Dr. H. L. Franklin, Phoenix,  
 "Hereditary Optic-Nerve Atrophy."  
 Discussion—Dr. Dake Biddle, Tucson.

(Continued on page 140)

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*Some Clinical Observations on the Influence of certain Hygroscopic Agents in Cigarettes.*  
Laryngoscope, 1935, XLV, 149-154★

SEE ALSO

*Pharmacology of Inflammation: III. Influence of hygroscopic agents on irritation from cigarette smoke.*  
Proc. Soc. Exp. Biol. and Med., 1934, 32, 241-245★



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NAME.....M.D.  
ADDRESS.....  
CITY.....STATE.....

- Dr. A. K. Duncan, Douglas, "Pre-Sacral Ganglionectomy in Dysmenorrhoea." Discussion.
- Dr. Haward Fleming (Guest) San Francisco, "Diagnosis and Treatment of Head Injuries." Discussion.
- Dr. Walter Brazie, Kingman, "Insurance Examinations." Discussion—Dr. Alvin Kirmse, Tucson.
- Dr. Ronald Davison, Tucson, "Interpretation of Blood Cholesterol Determination." Discussion.
- 3:00 P. M. Meeting House of Delegates and General Session.
- Election of Officers.

ARIZONA STATE MEDICAL AUXILIARY  
CONVENTION

Thursday, April 25th.

- 9:00 A.M. Registration.
- 12:30 P.M. Executive Board Luncheon  
Mrs. Joseph Madison Greer,  
McDowell Road at Ninth Street.
- 3 to 5 P.M. Tea and Musical  
Mrs. O. H. Brown,  
2025 North Central Avenue.
- 5 to 7 P.M. Open House  
Mrs. David M. Davis,  
Bethany Road and Sixteenth Street
- 7:30 P.M. Buffet Supper, Bridge  
Arizona Club

Friday, April 26th.

- 9:30 A.M. General Business Session  
Arizona State Medical Auxiliary,  
Hotel Westward Ho.
- 12:30 P.M. State Luncheon  
Hotel Westward Ho.
- 7:30 P.M. Annual Banquet—Informal  
Hotel Westward Ho.

Saturday, April 27th.

- 9:00 A.M. Golf,  
Phoenix Country Club.
- 10:00 A.M. Executive Board Meeting  
Hotel Westward Ho.

ENTERTAINMENT PROGRAM

Thursday, April 25, 7:00 P. M.

Smoker—at the Barn.

Friday, April 26, 7:00 P.M.

Annual Banquet—Hotel Westward Ho.

A milk-drink that is especially valuable in the dietary of the malnourished, is Cocomalt. It is particularly fine for children, because it converts milk into a delicious, chocolate-flavor drink which youngsters look upon as a "treat." They drink far more milk when it is mixed with Cocomalt than they would in any other way.

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## BOOK REVIEW

**OBSERVATIONS OF A GENERAL PRACTITIONER:** by William N. McCartney, M.D.; Richard G. Badger, Publisher; The Gorham Press, Boston, Mass.

This book is written by a general practitioner for the general practitioner. There are 478 pages covering 91 subjects divided somewhat as chapters. Many of the headings are merely the names of symptoms, some of which are: Pleurisy, vomiting, foot troubles, etc. Eight pages are devoted to tonsillectomy, whereas seven pages are devoted to tuberculosis and six pages to syphilis. He wastes a good deal of space in his effort to make it readable; for example, under the title of Infant Feeding, he has the following paragraph which is emblematic of many others:

"This glorious land of ours was discovered by a Dago, is owned by the Jews, is run by the Irish and censored by the A.M.A., is littered with placards and deluged with advertisements of infant foods. We hope the vast interstellar spaces escape. Each manufacturer has the one and only perfect product. That this savors slightly of blasphemy matters not at all. That the Author of our being is likewise the Creator of breast-milk, is an outworn idea that has fallen in the march of progress. Modern science has beaten His product to a frazzle. Why go back to the reign of Tiberius?"

There is, however, a great deal of good hard common sense in the book.

**A TEXTBOOK OF SURGERY,** for Students and Physicians; by W. Wayne Babcock, A.M., M.D., LL.D., F.A.C.S., Professor of Surgery and of Clinical Surgery in The Temple University; Surgeon to The Temple University Hospital and to the Philadelphia General Hospital No. 6, 1917-1919. Second Edition, Rewritten. 1312 pages with 1032 illustrations and eight plates in color. Philadelphia and London: W. B. Saunders Company, 1935. Cloth, \$10.00 net.

This is the second edition of **A TEXTBOOK OF SURGERY**. Every chapter has been rewritten and revised; a great deal of new material has been added on the parathyroid glands, the sympathetic nervous system, the duodenum, the mesentery, the omentum, etc.

The first edition of this book proved to be extremely popular and we predict that this edition will become even more popular because of its being more comprehensive. The publishers have done excellent work in the printing art. The book is well bound and substantial, as it must be, to carry 1312 pages. The author and publisher are both to be congratulated.

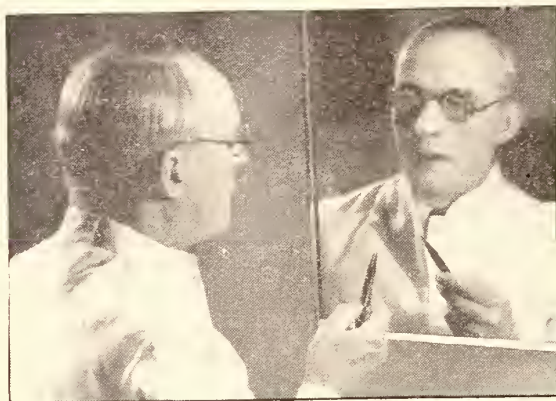
**DISEASES OF THE SKIN;** By Richard L. Sutton, M.D., Sc.D., LL.D., F.R.S. (Edin.) Professor of Dermatology, University of Kansas, School of Medicine; and Richard L. Sutton, Jr., A.M., M.D., L.R.C.P. (Edin.) Assistant in Dermatology, University of Kansas, School of Medicine; with 1,210 illustrations, and 11 colored plates; ninth edition revised and enlarged; The C. V. Mosby Company, 1935; St. Louis, Mo.

Richard L. Sutton, Jr., has joined his father in bringing out the ninth edition of this splendid text of diseases of the skin. This edition has been enlarged and revised considerably. It is apparently completely up to date.

To attempt to describe the volume other than to say that it is encyclopedic of skin diseases is useless. Every practitioner should have access to it.

**HUGHES' PRACTICE OF MEDICINE;** Revised and edited by Burgess Gordon, M.D.; With sections

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on Nervous and Mental Diseases, by Harold D. Palmer, M.D.; and on Diseases of the Skin by Vaughn C. Garner, M.D.; 15th Edition with 61 illustrations; Philadelphia; P. Blakiston's Son & Co., Inc., (1012 Walnut Street); 1935.

This is a conventionally arranged book on the practice of medicine, small size, flexible covers, for handy reference. There are a number of new subjects discussed in it which were not touched upon in the 14th Edition, for example: Psittacosis, coeliac disease, radium poisoning, botulism, granulocytopenia, hyperparathyroidism, coronary thrombosis, moniliasis, etc.

The discussion of allergy is limited to the discussion of hay fever. His paragraphs on eczema do not mention the term allergy. In the discussion of migraine he says that the causes are wrapped in mystery, and no mention is made of the allergic explanation. In the discussion of asthma, however, he considers allergy as the prominent etiologic factor.

I consider this a handy reference volume.

**THE CHINESE MEDICAL JOURNAL**, Volume 48, December, 1934.

This Journal is published in English; there are 11 original articles in the December number. The titles of these articles differ materially, in the main, from those found in American medical journals: For example, "The Coronary Arteries of the Northern Chinese Heart," "A Study of the Cutaneous Nerves of the Chinese Foot," "The Development of the Upper Eyelid of the Chinese, with Special Reference to the Mongolic Fold," etc.

The journal is printed on a good grade of paper. It appears to be well edited, and the articles well written.

**FOOD AND HEALTH:** by Henry C. Sherman. Mitchell Professor of Chemistry, Columbia University; The Macmillan Company, New York; 1934.

The author has a splendid worms-eye view of the entire subject of diet with the exception of his knowledge of allergy, which he states lies outside of the scope of his book. He does say, correctly, that well-balanced dietaries may prevent allergy and that the extent of food allergy is often due to persons having been kept too exclusively upon one article of food. He is wrong when he says that the old quotation "What is one man's food is another man's poison," is so rare that the statement is often misleading. He has discussed the entire problem from a chemist's standpoint and a very excellent viewpoint it is. His idea throughout is common sense and excellent in practically every way. He is evidently widely read on the subject of diet. The book is recommended not only to the laity but to the physician.

**USEFUL DRUGS:** A list of drugs selected to supply the demand for a less extensive materia medica with a brief discussion of their actions, uses and dosages; prepared under the direction and supervision of the council on pharmacy and chemistry of the American Medical Association; Edited by Robert A. Hatcher, Ph. M., Sc. D., M. D., and Carry Eggleston, M. D.; ninth edition; American Medical Association, 535 North Dearborn St., Chicago, Illinois.

Useful Drugs is a small sized book of 202 pages printed in small type and on thin paper. It is designed to give the necessary information on the relatively small number of drugs which are commonly used. A large number of the drugs discussed in the ordinary book on materia medica are omitted.



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Vol. XIX

MAY, 1935

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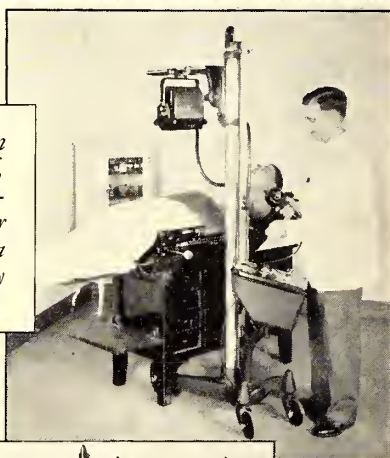
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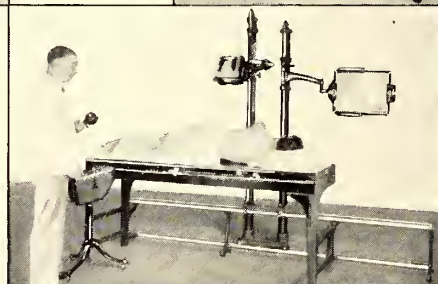
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# Southwestern Medicine

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VOL. XIX.

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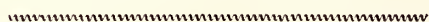
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VOL. XIX.

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## PRESIDENT'S ADDRESS

C. R. K. SWETNAM,

Phoenix, Arizona.

It has become customary in this state, at the inauguration of a President of the Association, for him to make an address. I have found in my reading lately that the same custom prevails in other parts of the country and with the same unsatisfactory results. Dr. Thurston Scott Welton, Editor of the American Journal of Surgery, in the Journal for July, 1934, has the following to say: "When one is elected to the presidency of a medical society, it is customary when he takes office to deliver a so-called 'presidential address.' By and large these addresses are nothing over which to get excited. Probably over 98 per cent would be rejected if submitted for publication in a first class medical or surgical journal. They are seldom inspired. It is the thing to do; the customers expect it; so let's write it and get the thing done. We have jiggled or chafed through the reading of many such addresses and have wished they would become an extinct species." With Dr. Welton's remarks in mind, I promise to take only a few minutes of your time.

For some years past, it has been the custom in Arizona for the President to talk on some phase of the economic side of the profession. I have no delusions that I can settle the many serious problems that are facing us at this time, and have nothing new to offer, only a plea for a "re-newal"—a re-newal of our faith in, and fidelity to, the ideals of our profession, those ideals that date back to the time of Hippocrates.

I am not suggesting that we should ignore the conditions that are embarrassing the practitioners of medicine. Some of these problems have been forced on us by the present deplorable financial situation and others have gradually and insidiously developed over a long period of years. The question of cost of medi-

cal care became so serious that a committee was appointed to make a five-year study of conditions in the various parts of the country. This committee brought in two reports, neither of which gave a satisfactory answer to the questions involved. The "majority report" seems to have encouraged the politicians and large numbers of the people in their attempts to force compulsory health insurance or state medicine on this country.

During the past two or three years, since Federal and State relief has become so general (Babson says one-fifth of the population of America is on relief) there have been many attempts to arrive at a satisfactory plan for paying for medical services to those on relief. So far no plan has been proposed that could be accepted by both the profession and the men in charge of relief.

Then there has been a colossal growth of the number of free dispensaries, insurance groups, pay clinics, etc. To again quote from Dr. Welton's article, in which he quoted Dr. Dannreuther of the Medical Society of the County of New York, "The most pernicious influence which has affected the practice of medicine in recent years is misguided public and private philanthropy."

In addition there has been a continuous succession of legislative attempts to enact laws which would be detrimental to public health. The times and conditions have been ripe for outsiders to get control and for either unscrupulous, or misguided, uplifters to foist their pet schemes on the public. Newspapers and magazines have been full of the subject and have presented arguments of the propagandist in such a light that the public has, to an extent, lost faith in the medical profession. The doctors have become panicky and many of them have been suggesting that we accept State Medicine. Furthermore, the economic conditions have caused the doctors to think especially of the business side of the profession.

All of these conditions and this publicity has had the effect of destroying to a great extent the old intimate patient-doctor relation and has made the old family doctor almost a thing of the past. With their minds poisoned by propaganda, and the doctor himself laying so much stress on the business side of the question, no wonder the public begins to think of the healing art as something that can be bought like a can of beans. No wonder they think the price should be \$1.00 or 50c per parcel. I have been struck by the number of persons in the last three to four years who come looking for a doctor, not their family doctor, but just anyone. Then they have gotten the idea, from propaganda, that the few minutes required to prescribe for a certain thing is all the doctor has to work.

I mention all of these things to call your attention to one point. They all trend to lower the standard of the medical profession. These schemes, even at their best, tend to standardize the practice of medicine and in any profession standardization leads to mediocrity and probably more certainly in medicine than in any other.

Also they tend to weaken the ethical standing of the physicians as a group. Last year Dr. Leff of Glendale presented an excellent paper before this society on "Common Sense in Ethics." This paper was called forth by the laxity of many men the doctor had contacted and we cannot deny the truth of his statements. This paper was well thought out and should provoke earnest thinking on the part of all of us. However, I wish to disagree with him on one important point—the method of curing these conditions. Instead of changing our code of ethics to fit the practice of the men, I would endeavor to get these men to change their practice to fit the code.

Let us consider for a moment this code of ethics. It is based on the so-called "Oath of Hippocrates" and I have picked out a few parts of it to call to your attention. That oath was an ancient conception of a code of ethics combined with a fraternity, to some extent, a secret fraternity, and certainly closed to all who did not bind themselves by the stipulations of this oath. They were bound by that oath to assist a brother and to relieve his necessities, to teach this art to those who wish to learn it and are willing to be bound by the oath, to follow that

system of regimen which, according to my best judgment, I consider best for my patients and abstain from whatever is injurious, to give no deadly medicine to anyone if asked, nor to suggest any such council, not to give to a woman any instrument to procure abortion, to leave to those especially trained for them those things in medicine for which I am not properly equipped, to abstain from every voluntary act of mischief and not take advantage of any condition encountered in dealing with the sick or entering their homes, to keep secret all that I see or hear in connection with my professional practice or not.

A code of ethics founded on these principals is still good, and I am emphasizing it at this time because I think that by complying with it we can regain that old, intimate patient-doctor relation. One practical result will be the regaining of the public confidence and an opportunity to educate the public. All schemes of publicity have failed; let's try the personal contact. We cannot hope to keep the confidence of the people unless we keep faith with ourselves, and we cannot keep faith with ourselves except by a devotion and consecration to our ideals.

One of the best known and most beloved physicians of America, known as a scholar and writer as well as a surgeon, is Dr. Harvey Cushing of Boston. I wish to quote a page from his Graduation Address, to the Jefferson Medical College, in 1926.

"Devotion is an attribute one cannot estimate and record by ordinary standards. How much the practicing doctor cares about his patients as individuals apart from their being the source of his livelihood; how much the medical scientist may be interested in promoting science rather than in securing his own promotion; how much the teacher influences his pupils to their best efforts, unmindful of what the curriculum briefly requires of him; how much the student engages in his work for the work's sake, regardless of his marks and rating—all these things depend on a devotion which places spiritual above material rewards.

"This may sound, my young friends, like sermonizing. And valedictory addresses to medical students are prone to be commonplace, platitudinous with the platitudes of a thousand pulpits, as Sterne said was true of most sermons. But there are certain things which concern the code of the doctor, handed down to us from ancient times, which, though commonplace, deserve reiteration on such occasions as this. They are things often lost sight of in these days when the Hippocratic Oath, as supposedly too antiquated for present-day purposes—



es, is rarely read to graduating classes. I rejoice that Jefferson maintains this custom, for there is nothing that expresses so well, as does this justly famous credo, the ideals which from the first have actuated the doctor and have led to the solidarity of the profession you are entering. No guild has a sounder code of ethics; no Masonic group stronger ties of brotherhood.

"For no insufficient reason do we as a profession hark back to the fifth century before the Christian Era when the man we venerate as the 'Father of Medicine' first cast superstition aside, dissociated his calling from priesthood, and based it on the principles of inductive philosophy. So, tempering them to our modern period, we may well hold fast to those hallowed rules of professional conduct which he promulgated and which have stood the test of usage as long as the canons of the Old Testament, which likewise in these fallen days are becoming somewhat unfashionable."

Dr. Cushing says these sentiments deserve reiteration, and I agree that it would be an inspiration for each of us to read this, and in fact the whole address, at least once a year. Such clear sane thinking and expressed in such beautiful language is all too rare in these times. I realize that I have not, and am sorry to say, cannot give you any definite plan for curing all the ills mentioned; but I think they will have to be approached along two lines: By working through your county societies, and thence through the state and national societies, and by regaining the confidence of the people. Once more quoting from Dr. Welton's article:

"It is always to the patient's advantage to select his own physician, and the best medical center for the average citizen is his family doctor's office.

"The County Medical Society is the voice of organized medicine in the community. It must be militant but not arbitrary, positive but judicious, and protective to the medical profession, but zealous in behalf of the public welfare. Its officers must have moral courage, vision and impartial judgment.

"Select the officers of your county society with care. Attend the meetings. Engage in an open and frank discussion of all economic problems. Remember the rabid minority are usually organized. Beware of them and of their 'schemes of dubious value.' Do not drift in the current of least resistance. Do not leave these problems to the other fellow. Study and listen to those who are conversant with all sides of these problems, and move slowly in the direction of radical changes."

This quotation, from Dr. Welton's editorial, who in turn was quoting from an address by Walter T. Dannreuther of the County of New York, I am passing on to you, because it is the best advice I could find. I am conscious of the fact that I have given you nothing new, but I

have no apologies for once more appealing to you to do your part in settling these problems by renewing your allegiance to your county society, and while you are working through your county society and doing your part, to renew your faith in and fidelity to your ideals.

## MEDICAL ECONOMICS

REXWALD BROWN, M.D., F.A.C.S.

(Read before the Arizona State Medical Association, Phoenix, Arizona, April 25, 1935.)

The topic of medical economics in the minds of most doctors has become a hackneyed subject. It is threadbare because there has been no crystalization into action of the **interminable discussions** which have harassed medical men during the past few years. In the controversy over the fees which medical men should receive, the medical profession has held that it should be the judge of the compensation charged and received for medical services rendered. This position assumes the right that the medical profession should be the sole dictator of fees without consideration of the ability of the consumer to pay for them. My impressions are that to the average doctor medical economics means a better system of collection of bills and also remuneration for free work. This is a laudable objective if it does not cut down the living standards of the recipients of the medical services.

What does **generic economics** convey to those who have studied its connotations? The implication of economics is, that we all exist in a world of cooperative workers. Workers do not include the incompetent and ne'er-do-wells who have no sense of responsibility nor do they include the unfortunate whose condition is due to no fault of their own. They are classed by society, justly or unjustly, as indigents. The function of workers is to provide food, clothing, shelter and necessities of various kinds for all the population. Doctors are among the workers. Doctors have had a tendency to separate medical economics from the entire economic picture and to consider themselves vested with special privileges. Although health is the most important of all possessions, the knowledge of how to secure health should not be financially prohibitive to other workers.

One of the phases of medical economics

which has been overlooked, not wilfully but actually, by doctors is the **financial relation of the public to doctors**. There is a definite equation between the medical profession and the public. The public's point of view on medical economics is expressed through numerous lay organizations of which the lay foundations, notably the Milbank, the Rosenwald and the 20th Century Funds are conspicuous examples.

Editorials in medical journals have bitterly excoriated the lay organizations including the foundations. I read before the California State Medical Society a paper entitled "Is Medicine Drifting Into Lay Control?" It was published in California and Western Medicine October, 1926. My convictions are that the paper unintentionally conveyed wrong impressions which were and are, that I am opposed to lay influence in medicine. A careful review of that paper should establish a conviction that I believe the medical profession has as yet not manifested to the public its full possibilities of purpose which include medical responsibilities as well as medical rights.

In the past few years conditions have permitted me to meet and discuss with several members of the foundations the controversial issues which revolve around medical responsibilities and rights. The atmosphere of these discussions was in no measure inimical to the welfare of the medical profession. Repeatedly was it affirmed that doctors of scientific medicine were the only reliable source from which knowledge of medical problems could be ascertained—that the **purposes of foundations** were to **help doctors** to achieve their medical purposes to the utmost of their possibilities. In the course of evolution there arises to the surface of understanding new values. Possibly the lay foundations are an instrument to help the medical profession to enlarge its sense of medical responsibilities.

One of the acute frictions in the medical realm today is the **difference of opinion between doctors and lay foundations**. This unfortunate status could be corrected if all doctors of medicine were informed that the efforts of the foundations are against the hazards of modern life, assisting the medical profession in its battle against one enormous hazard—disease.

The **foundations, representative of lay organizations, have no desire to destroy the sound**

basis on which medicine has grown. Their goal is to break down the barrier which separates precious personal relationship of patient and physician from payment for those relationships—a non-personal feature. Insistence on payments for services rendered often wrecks beautiful medical contentments.

What are the **principles of the foundations**? Their sound position can be read in the proceedings of the tenth annual Community Health Council of New York representing official and voluntary health agencies, published November 15, 1934, and in the report of the President of the Milbank foundation before the County Medical societies of Indiana, January 27, 1935. An excerpt of this report was published on page 35 of the advertising section of the March issue of California and Western Medicine. The epitomized standards are: Strong desire to cooperate with the medical profession; sound recognition of the leading position of the medical profession in the promotion of health and cure of disease; determination to support the medical principles of recognized scientific doctors; rendition of assistance to doctors in a concerted drive toward better health for all; and action as an agent in preventing any movement toward state medicine.

**Physicians have shown no unprejudiced interest** in creating funds to be used in studying the economic picture in which there is direct relationship between patient and doctor. Doctors should realize that the large endowment funds of the lay foundations are not used against the interests of the medical profession, but are used to advance the general welfare of all the people. We are prone to forget that doctors are part of the people. We have a tendency to isolate ourselves and exact partisan consideration. Too little information is possessed by the medical profession concerning the dual interests of the lay foundations. The interests are, fair professional charges to patients and adequate compensation to doctors of medicine—the dispensers of the services.

The last three or four paragraphs may seem like a brief for lay organizations. In reality the brief is a **plea for understanding** cooperation **between the lay public and the practitioners of scientific medicine** particularly as it applies to the financial relationships between them. The public represented by lay organizations demands no kind of control over the purely med-



ical aspects of disease in which it has no background of experience and training. It feels it is not unfair in asking the medical profession to confer with its representatives over adjudication of charges. There should be recognition of a real difference between services rendered and fair or unfair charges for them.

A **proper solution** of the many differences of opinion, disputes and prejudices over rights, which often are fixed ideas, usually the products of the distant past and insistence by each side of an equation, that right belongs to it, may be reached in medical economics through **health insurance**. The movement toward health insurance was not engineered by lay organizations. The movement grew out of conditions in the world which cried for adjustment. The activities of the foundations have been largely confined to studies of facts and the backing of health experiments managed jointly by doctors and lay people. Interim reports on facts and experiments released through lay publications provoked and annoyed the medical profession. The reports shook doctors from their centuries old lethargic opinions and their general reactions were resistance and opposition to the suggested changes.

A specific reaction to the inauguration of better conditions in medicine was the report of the majority members of the committee on the costs of medical care. The recommendations of this committee were for more **effective organization among scientific doctors**. Organization in the ranks of the medical profession has not advanced far. In fact, organization is largely taboo. The enlargement of the reaction to better conditions has created antipathy to health insurance, which is not completely understood by a large proportion of doctors. They classify health insurance with state medicine. In fact health insurance and state medicine have nothing in common. State medicine means control and supervision of medical activities by lay politicians who are entirely unfitted to comprehend the broad purposes of medicine. Health insurance trends in America are toward medical control and supervision of medical affairs by educated physicians.

I am an **advocate of health insurance**. First steps on the highway toward the acceptance of health insurance by the medical profession and the public have been laid in the preliminary reports on health insurance by the Michigan and California State Medical Societies. Pos-

sibly the Houses of Delegates of the State Medical Societies of these two states may be impressed by the preliminary and later findings before the State Medical Societies convene this year. On the basis of the intensive studies made on the incomes of doctors and patients, more steps may be taken or a platform laid.

What might be a sound **set up for health insurance**? Newspapers and magazines have printed articles and editorials on the subject ever since the publication of the report on the cost of medical care. Practically all doctors have opinions pro or con on the subject. Most all of them have united on one stand if health insurance should be adopted. That stand is: No violation of the true principles or standards which have evolved in medicine through the centuries. A sound program of health insurance could be instituted in America without the defects discovered in the European systems. The most serious defect in the European systems is the administrative control by **laymen**. The set up resembles too closely state medicine which American doctors fear. It should be erected on the well established foundations of the past. The movement can be promoted by organization and harmonize the conflicting misunderstandings.

**Health insurance will encircle the following values:** Fair economic benefits to doctors and patients; retention of intimate personal relationship between doctor and patient; a process of personal budgeting to meet medical services; inclusion of the entire population; freedom of patients to choose their doctors and freedom of doctors to refuse patients; development of a sense of professional responsibility to patients including disciplinary measures to doctors who do not measure up to standards prescribed; complete separation of medical services from certificates of disability; no interference by insurance system with private purchase of medical care; provision for periodic postgraduate study; instructions in choosing a competent doctor; requirements covering the maximum number of patients a doctor may accept; the basis of consultation with specialists; and complete equitable medical control.

The details of these values would be constructed from the framework of our present medical knowledge. A plan would likely be flexible to conform to varying conditions.

**Health insurance would comprehend and inaugurate administrative medical authority.**

## "A PLAN FOR MEDICAL CARE OF LOW INCOME GROUPS"

J. B. LITTLEFIELD, M.D., F.A.C.S.  
Tucson, Arizona.

From the title, given me for my paper, many may think I have a plan for giving medical attention to the low-income classes which, will serve their needs and at the same time, prevent state medicine. Such is not the case. No one plan can be made to work in all communities because of varying conditions.

The American Medical Association has set forth certain principles as follows:

"Your committee does not recommend any plan, but has abstracted from the pamphlet the following principles and suggests that they be followed by all constituent bodies of the American Medical Association as bases for the conduct of any social experiments that may be contemplated by them:

"First: All features of medical service in any method of medical practice should be under the control of the medical profession. No other body or individual is legally or educationally equipped to exercise such control.

"Second: No third party must be permitted to come between the patient and his physician in any medical relation. All responsibility for the character of medical service must be borne by the profession.

"Third: Patients must have absolute freedom to choose legally qualified doctors of medicine who will serve them from among all those qualified to practice and who are willing to give service.

"Fourth: The method of giving the service must retain a permanent, confidential relation between the patient and a "family physician." This relation must be the fundamental and dominating feature of any system.

"Fifth: All medical phases of all institutions involved in the medical service should be under professional control, it being understood that hospital service and medical service should be considered separately. These institutions are but expansions of the equipment of the physician. He is the only one whom the laws of all nations recognize as competent to use them in the delivery of service. The medical profession alone can determine the adequacy and character of such institutions. Their value depends on their operation according to medical standards.

"Sixth: However the cost of medical service may be distributed, the immediate cost should be borne by the patient if able to pay at the time the service is rendered.

"Seventh: Medical service must have no connection with any cash benefits.

"Eighth: Any form of medical service should include within its scope all legally qualified doctors

of medicine of the locality covered by its operation who wish to give service under the condition established.

"Ninth: Systems for the relief of low-income classes should be limited strictly to those below the "comfort level" standard of incomes.

"Tenth: There should be no restrictions on treatment or prescribing not formulated and enforced by the organized medical profession."

By adhering to these principles we can free any scheme from the stigmata of commercial and political interests who may wish to exploit the profession for personal greed; we shall at the same time keep high medical standards.

Only broad principles can be outlined by any State Medical Association for its members; the real work must be done by the county units. A county society with a live-wire medical economics committee can investigate its individual problems and outline plans to fill the peculiar needs of the respective community. A plan such as the "Detroit plan" or the "Washington plan" would serve wonderfully well in communities such as Globe, Miami or Ajo where the mines have pay rolls, and cooperation would be possible between the employers, the employed and the physicians. In Pima County, particularly in Tucson, I do not feel that it would be practical because there are no large pay rolls, and to handle such a plan would necessitate too large an outlay of money to carry on the expenses of a central office. I believe that in communities such as ours the individual doctor should know the condition of the individual patient and make his charges accordingly along traditional lines.

The local committee should be informed upon the activities of "free clinics," contract practices, insurance plans, etc. Certainly every plan should be thoroughly investigated by the economics committee and the acid test of the ten golden rules applied.

The local committee should work with the State Committee to eradicate undesirable features of any plan such as insufficient pay for medical service; denial of freedom of choice of physician; and inadequate medical service which practically always exists under most plans.

I believe that any plan must fail unless operated by the local medical society.

We must educate ourselves and the general public to the fact that in these low-income groups there is wholesale lack of shelter, food, clothing and healthy environment, along with



lack of medical attention, and we should refuse to be made the goat of any well-meaning movement unless all other factors are equally considered.

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## SYPHILIS

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### Round Table Discussion

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By DR. A. W. RAPHAEL,  
Santa Fe, New Mexico.

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(Presented Before New Mexico Medical Society, at its 52nd Annual Session, July 19-21, 1934, at Round Table Discussion at New Mexico State Institution for Insane, Las Vegas, N.M.)

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At autopsy the most striking changes from syphilis are in the brain and meninges. The dura is often lined over one or both halves of the brain with a thick, blood-stained layer of new tissue, separable into several sheets; the deeper layers are stained a dull rusty brown by the pigment from the extravasated blood. This haemorrhagic pachymeningitis is not peculiar to general paresis.

The pia arachnoid is usually opaque and grayish white or very edematous. Not infrequently it stretches across wide sulci, partly filled with fluid; the surface of the brain may present a great depression full of yellowish fluid through and over which the arachnoid stretches. These conditions are the result of the atrophy and shrinkage of the cerebral substance; the decrease in the bulk of the convolutions throws wide the sulci. The whole brain is decreased in size—on an average by 150 grams; the two sides may be asymmetrical. The cerebral ventricles are often widened and contain an excess of fluid. Their lining is roughened by the appearance of minute gray, sand-like nodules which are outgrowths of neuroglia which push the ependyma before them. This "ependymitis granularis" also occurs in other conditions.

Microscopically, alterations are found especially in the more anterior portions of the cerebral cortex. The meninges are thickened and infiltrated with mononuclear wandering cells, among which plasma cells are prominent. They are often intimately adherent to the brain substance. The vascular prolongations are accompanied by mantles of plasma cells and other

smaller mononuclears, and even about the smallest vessels, which seem dilated and increased in number; the spaces are filled with the cells.

The nerve-cells of the cortex are in all stages of degeneration, shrinkage and disintegration, and great numbers have disappeared. Those which remain have lost their protoplasmic processes in many cases and often their axone fibre. They are also greatly disarranged, so that the normal layers and vertical rows are no longer to be made out, but the cells lie confused and sparsely scattered in the cortex. Naturally the fibres, and especially the tangential association fibres and collaterals, are greatly reduced in number. The radial fibres seem more resistant, but even they are markedly diminished. In consequence of these losses the cerebral convolutions shrink and fall apart. But in the place of the lost cells and fibres a great new growth of neuroglia springs up. Abundant neuroglia cells, including the so-called spider cells, appear, together with a relatively dense network of neuroglia fibres. This is especially concentrated on the exposed surface and in those places where the brain substance is invaginated by the nutrient vessels. Every vessel is thus surrounded by a network of fibres. Sometimes there are even projecting brush-like masses on the outer surface, which aid in causing the adhesion of the meninges. The superficial layer, normally rather indistinct, becomes a dense felt-work of neuroglia fibres extending a little into the cortex and devoid of nerve-cells.

The spirochete found by Noguchi and Moore in parietic brains were scattered in the cerebral substance, not particularly in association with the vessels and not in this external neuroglial layer. The cerebrospinal fluid is rich in lymphocytes and contains also plasma cells. It is rich in globulins and gives the Wassermann reaction in extreme dilution.

In the remainder of the brain the lesions are very similar with widespread loss of nerve-cells and fibres. This is well seen in the basal ganglia, the pons and medulla, as well as in the cerebellum, whose peculiar cortical cells may be greatly reduced.

In the spinal cord, tract degenerations are found in limited areas of the posterior column, generally together with descending degenerations of the pyramidal tracts. Doubtless, while

the posterior tract degeneration depends upon the same etiological factor as the changes in the brain, the descending degenerations may be due to lesions in the motor cortex. These are the changes in the so-called tabo-paresis, which, as has been said, does not correspond precisely with tabes in symptoms or anatomical basis.

## SYPHILIS

(A Blood Test Survey)

DR. H. S. W. ALEXANDER,  
Santa Fe, N. M.

(Presented Before New Mexico Medical Society, at its 52nd Annual Session, July 19-21, 1934, at Round Table Discussion at New Mexico State Institution for Insane, Las Vegas, N. M.)

Dr. Walter Clarke has asked me to present his findings from a blood survey of Mora and other counties of New Mexico. One other reason for my entering the discussion is that I was with the tuberculosis survey when we obtained some 1400 blood specimens examined in the State laboratory.

Dr. Clarke, of the staff of the American Social Hygiene Association, conducted a survey in an endeavor to estimate the amount of unrecognized and untreated syphilis in several counties of the State. In Mora county he did a very complete survey and has already published an interesting paper on his experiences.

Dr. Clarke very unfortunately is unable to be present, and I shall give a brief summary of his conclusions.

His findings are based on, and his conclusions are drawn from, four distinct sets of figures, viz: Dr. Clarke's survey in Mora county; the census done by the U. S. Public Health Service; the blood survey done under the F.E.R.A., and blood specimens taken during the tuberculosis survey. In addition to the four sources mentioned, Dr. Clarke also obtained valuable information from his analysis of the State laboratory records.

He has pointed out several pertinent problems to be considered in the discovery and treatment of syphilis within New Mexico. The first of these is the inability of the State and counties to finance much needed work in this field. The second is a large proportion of the population is unable to pay a private physician

for adequate treatment. How then, he asks, is it possible to deal with the problem of syphilis in the State?

In order to answer this question we must know something regarding the prevalence and distribution of syphilis and the facilities for its treatment. In the first census consisting of a questionnaire sent to all doctors and hospitals within the State, it was found that 88 per cent of the physicians (12 per cent made no returns) had 1831 cases of venereal disease under treatment for syphilis and 820 for gonorrhea.

Basing his calculations on the reported cases and on the actual number of positive Wassermanns found during the various surveys, he estimates that about 1/20th of the actual number of cases are under medical treatment. So long, therefore, as so large a proportion of the cases never receive medical attention, the problem of the control of syphilis remains a formidable one.

I have frequently heard the criticism that the blood surveys will naturally give a loaded result, as only suspects are examined.

There are, I think, two answers to this: First, Dr. Clarke's sample in Mora county included almost the entire population of the villages in which he worked. Second, during the tuberculosis survey the individuals who came to the clinics and from whom blood was taken as part of routine health examinations came not with the idea of having their blood examined, but as contacts of children who showed positive tuberculin tests.

Dr. Clarke's survey gave us 5.8 percent positive Wassermann reactions. This compares with an estimate of five per cent of the population of the United States as a whole being infected with syphilis. Eliminating the children in Dr. Clarke's survey we find that eight per cent of the adult group is infected.

During the health survey bloods were taken in five counties and the numbers and results were as follows:

Bloods Taken	Positive	Per cent Positive
329	36	10.9%
231	31	13.0%
257	7	2.7%
228	12	5.2%
407	31	7.6%
1452 (total)	117 (total)	8.0% (average)



If this sampling of the blood can be taken as an indication of the situation in the State as a whole, there are not less than 20,000 cases of syphilis—basing this calculation on the adult population in 1933.

From the census taken of cases under treatment we know that 1011 are under medical care, which leaves us the rather appalling conclusion that 19 out of 20 cases in New Mexico are receiving no medical treatment.

Dr. Clarke asks, "What then are the factors leading to this state of affairs?" First, he concludes, probably only a very small proportion of these cases have ever consulted a physician either because of economic difficulties or from a failure to recognize the seriousness of the condition. When we consider the comparatively small number of bloods examined annually in the State laboratory and compare this with the high percentage of positive Wassermanns found in each survey, we must reluctantly come to the conclusion that laboratory facilities are not being made full use of by physicians.

Dr. Clarke in his analysis of the records of the State laboratory points out that of the 1994 specimens of blood sent in by all practicing physicians and Health Officers, 1078 or more than 50 per cent were sent in by 25 physicians. Ten out of 31 county health officers had not sent in a single specimen. From four counties not even one specimen had been sent in for examination.

Considering the population of these counties at some 22,500, excluding Indians, on the basis of survey findings there should be well over 1000 cases of syphilis in these counties.

Remembering, therefore, that it is estimated that 19 out of every 20 cases receive no treatment whatever, we may well ask—what can be done to remedy this unsatisfactory state of affairs?

One answer is that the U. S. Public Health Service has offered to lend to the State a full time officer of the Service to attack the problem of venereal diseases in New Mexico and to take charge of popular health education with a view to convincing the public of the importance of consulting physicians in regard to venereal infection. They ask only that the State pay the necessary travel expenses and clerical aid and the necessary drugs for those unable to contribute toward their treatment.

This offer will be presented to the next session of the New Mexico Legislature, and it is to be hoped that it will be sympathetically received.

It has been clearly understood between the Service and the State Bureau of Public Health that any system for improving the diagnoses and the treatment of venereal diseases in the State, will be worked out in collaboration with the State Medical Society.

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## PRESENT DAY CONCEPTIONS OF CHILDHOOD TUBERCULOSIS

By JOHN W. AMESSE, M. D.  
Denver, Colorado

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(Read before the New Mexico Medical Society at its 52nd Annual Meeting, at Las Vegas, N. M., July 19-21, 1934.)

The genius of American medicine is progress; in every stage of our history we are proud to believe that the profession has been consistently in the lead among those agencies making for physical and social well being. Its motto, taken from a sterling old text, has been: "prove all things; hold fast to that which is good," an admonition that might with profit be observed during these turbulent times, in other fields than medicine. There may occasionally be difficulty, however, in interpretation of this elementary caution; if it means, for example, "good enough," then we should seek firmer ground and with open mind cast about for newer guidance.

In the sphere of preventive medicine our conquests have been particularly brilliant; this conference needs no review of the titanic achievements which have subjugated world old plagues and mitigated the ravages of others. It is questionable, however, whether our accomplishments in the suppression of the major infection of mankind, tuberculosis, has been entirely satisfactory either to profession or public. Certainly our attainments in this modern crusade against the most insidious enemy that has probably ever challenged human wisdom and ingenuity have not been on a par with victories won in allied fields.

It seems particularly fitting that the conclusion of the golden jubilee of Koch's great contribution to science should find us ready to critically appraise the various features of the

whole tuberculosis problem, to re-adjust ourselves in the light of 50 years' experience and to re-cast, if it seems wise, the conventional views, now commonly accepted, concerning prevention and control. We realize, in looking back over this half century of intensive investigation, that scores of distinguished scientists have devoted their talents to study and research, without filling the great gaps in our knowledge of tuberculosis, and we are likewise conscious of the wide differences of opinion, even among authorities regarding its pathogenesis and treatment.

The National Tuberculosis Association places the annual death rate in the United States at 150,000, the active, diagnosed cases at one million and the unsuspected cases at two million, thus making the prevention, diagnosis and cure of this disease the most immediate and important problem in medicine. The declining death rate, encouraging as it appears on the surface, does not imply that there is a reduction in the aggregate number of potential cases. In Colorado, and in the great Southwest generally, the same influx of pulmonary cases has continued undiminished for more than 40 years notwithstanding the inauguration of state sanatoria by practically all our Eastern and Southern commonwealths. In Denver, for example, there are a dozen institutions devoted to the care of the tuberculous, with a total capacity exceeding 3000 beds, and, in Colorado, we find, at the close of 1929, 10,389 active cases reported, or one for every 99 of our population; of these at least 4000 are indigent and must be supported from public funds.

Sauer<sup>1</sup> summarizes what we have learned thus far: Infection with the tubercle bacillus is much more prevalent, especially among children, than was formerly believed; both the human and bovine bacilli are pathogenic for man; aspiration of bacilli, disseminated by active cases, is the most frequent form of infection; the primary focus is usually found in the lung; rest, light, air and a low carbohydrate diet are our chief therapeutic measures. He further declares that the disease is still uncontrolled in spite of these discoveries, because: Infants and young persons are extremely susceptible; early diagnosis is often difficult; sources of infection are numerous; the course of the disease tends to become chronic; specific treatment is still in the experimental stage.

Just how much we may credit existing agencies in the reduction of the death rate since 1900 is an open question. It is well known that the virulence of infectious disease is marked by strange and unexpected intervals of regression, well illustrated in the prevailing mortality of scarlet fever, diphtheria and smallpox and the almost total disappearance, in many sections of America, of typhoid fever, without the exhibition of any extraordinary efforts in prophylaxis.

So it would seem, as Prof. S. Lyle Cummins<sup>2</sup> asserts, that tuberculosis, in spite of the fact that the etiological agent is known, and that it has been the subject of endless investigations, is still very imperfectly understood; "its manifestations at different age periods and under different cultural and social conditions, vary as greatly as if not one but several diseases were concerned." Brownlee's<sup>3</sup> analysis of death rates in tuberculosis suggests that behind tuberculosis mortality lies a complex and possibly unknown associate. The need for wide dissemination of all knowledge available and for the free discussion of every debatable feature is therefore apparent.

#### CHILDHOOD TUBERCULOSIS

Hitherto classified as juvenile or hilum tuberculosis, clinicians are now agreed that the diffuse type of this disease, associated as it usually is with involvement of the tracheobronchial lymph nodes, represents the first or primary infection as contrasted with the adult or re-infective form. Lodging in the parenchyma of the lung, the infecting dose of tubercle bacilli arouses an inflammatory reaction which is at once reflected in the neighboring hilar lymph structures; the area involved may, in its perifocal reaction, be microscopic or large enough to encompass an entire lobe. Following these phenomena, which characterize practically all first infections, regardless of age, resolution begins; the process may continue for many months but the nidus of infection can heal only by fibrosis and calcification. This latter stage may begin at once or be deferred for a considerable period; in any event it continues for years and signifies, when complete, that the original focus, or Ghon tubercle, has become a healed lesion. Radiograms readily demonstrate these calcium deposits but grievous mistakes are frequently made in interpreting as innocuous a partly healed focus, with caseated



areas still harboring virulent bacilli, and calcification incomplete.

Myers<sup>4</sup> warns, in this connection, that "not until calcium deposits appear can one be reasonably sure that the lesion in question is of the childhood type."

The perifocal infiltration, as above noted, may reach astonishing proportions, and what was formerly classified as the splenic pneumonia of Grancher, is now accepted as a toxic process generated by the tuberculo-proteins at the site of infection; it does not contain bacilli and is therefore, regardless of extent, a relatively benign process. With the development of radiology and tuberculin skin tests, Eliasberg and Neuland<sup>5</sup> discussing an invasion of this character in an infant of seven months, proposed the name of epituberculosis, to distinguish it from pulmonary tuberculosis with its inevitably poorer prognosis, and from the gelatinous infiltration of Laennec with its tendency to caseation. It is unquestionably a non-specific inflammatory process.

While it has long been established that tubercle bacilli of the bovine type, derived from infected milk, may cause tuberculosis, it has repeatedly been shown that all forms of pulmonary tuberculosis in children are almost invariably of human origin. Blacklock<sup>6a</sup> made a study of this infection in infants and young children, from a few hours up to 13 years of age, dying in the Royal Hospital for Sick Children at Glasgow, either from illness of any sort or from accident. In a series of 1800 consecutive necropsies, search was made for evidence of tuberculous disease, the diagnostic criteria being the same throughout the series. Of this group, 283 or 15.7 per cent showed gross evidence of tuberculous infection; the infective organisms were isolated and typed in 183 cases while in 65 invasions of the bones, joints and glands, tubercle bacilli were typed in 53.

Of these 283 cases in which lesions were found post-mortem, the greatest number occurred during the first year of life and the next highest in the second year. Practically all the children in the first two years of life died as a result of tuberculosis while in the fourth to 13th years, 75 per cent died from it.

Primary infection of the lung or thoracic lymph nodes was found in a majority of these autopsies; for a better understanding of the mechanism of infection, Blacklock<sup>6a</sup> points out

that the lungs are sharply marked off into definite lymphatic territories which drain into the related tracheo-bronchial lymph nodes at the hilus and that these nodes are strictly regional and have no connection with the lymphatic systems of the neck or the abdomen. The efferents from these nodes drain almost directly into the blood stream and the tuberculous infection can be readily spread throughout the body by this means. From a histological study of the primary lesions, Blacklock was unable to demonstrate that any of these had a vascular or lymphogenous origin. In support of the opinion that these primary lesions are of aerogenous origin, he states that of 107 cases of primary thoracic infection, in only three instances were bovine strains isolated; 92 of the children were from city districts where through consequence of overcrowding, human infection was a constant menace.

Karshner<sup>6</sup> emphasizes the similarity in sequence of manifestations between tuberculosis and syphilis, each exhibiting a primary, a secondary and a late stage. The events which follow the entrance of tubercle bacilli into the lung may thus be outlined: If the dose is an overwhelming one, the child is rapidly overcome; if the invasion is mild, the primary lesion usually goes on to cure through fibrosis and calcification; toward puberty or in early adult life infection of the lungs may occur, either from mobilization of bacilli in the bronchial nodes or by massive infection from without.

#### INCIDENCE

Prior to the introduction of more exact methods of diagnosis, the degree of infection among children was purely conjectural. Estimates differed widely in every country where scientific medicine is practised and forbidding statistics were assembled, based entirely on clinical observation among the sick rather than with the entire child population. With the development of radiological studies and the inauguration of tuberculin tests in school groups a nearer approach to the actual prevalence of tuberculosis in the young can be determined. Reviewing but a few of the numerous contributions made on this vital subject during the past decade, we find that while tuberculous infection is not—and of course need not be—universal and inevitable, a surprising number everywhere, particularly in urban communities show evidences of the disease. Hethrington<sup>6a</sup> found 90 per

cent of adolescent school children in Philadelphia with positive skin reactions; a more hopeful report comes from Massachusetts where the average for many localities among children from five to 15 years is 28 per cent. In the 10 year program for the examination of school children of that state, undertaken to determine the extent of primary tuberculosis in early life, more than 42,000 have been examined and subjected to the Pirquet test. At age five, 21 per cent reacted; at age 10, 28 per cent and at age 15, 35 per cent. In one city of 60,000, the percentage varied in different school districts from 11 to 60 per cent, depending undoubtedly upon the opportunities for contact with open adult cases. Nationality also was found to have a distinct bearing upon susceptibility. In Vienna, Pirquet found that 55 per cent of children showed infection by the fifth year, 81 per cent by the 10th year and 93 per cent by the 13th year.

In surveys made of rural communities in this country the degree of infection falls to as low an average as 22.5 per cent except in colored children, where it often exceeds 50 per cent. Citations from further reports could be continued, if necessary, in our attempt to emphasize the obvious conclusion that an incredibly high incidence of tuberculosis prevails among children even in this most favored of all countries.

#### DIAGNOSIS

The time has, happily, long gone by when our chief reliance in the diagnosis of diseases of the chest has been placed on the stethoscope. In our first line of defense against the spread of tuberculosis comes the family physician and the school physician; to them we must look for continuous exhibition of the diagnostic technique which has been evolved in this generation, and which alone can make the control of the disease possible. In a sharp "right about" from the period when we placed considerable emphasis upon physical signs, symptoms and laboratory examinations, we now admit such evidence of little or no value in the diagnosis of tuberculosis among children, at least in the earlier forms. The temperature, weight, blood picture, presence or absence of cough, pulse rate, physical activity, sputum examination are all subordinate criteria in the recognition of incipient tuberculosis in early years.

Only five factors are at this time considered of major value in the determination of such a

diagnosis: History of exposure, undue fatigue, skin reactions, x-ray and fluoroscopic studies, and gastric lavage. Few children exposed repeatedly and for long periods to open cases can remain uninfected; the search, not only in the immediate family but among the child's associates will be well rewarded.

The tuberculin test, preferably the intracutaneous or Mantoux reaction, employed universally in the detection of tuberculosis of childhood, has assumed immeasurable importance; properly carried out, we may readily determine in 48 hours which cases are infected and, where suitable equipment is available, proceed to the next and perhaps most crucial inquiry of the x-ray. If the skin response is positive and the chest radiograms negative, we may search for evidences of the disease elsewhere—in calcified nodes of the abdomen or cervical region, for example, or we may conclude that lesions in the lung are so slight and so recent as to escape detection through the x-ray. In this event, further films should be made, at intervals of a few months.

The importance of proper x-ray technique in the making of films has not been sufficiently emphasized. In non-cooperative children it is almost impossible to secure satisfactory films; with varying degrees of aeration, the results are extremely difficult to interpret. Dr. Kenneth Allen, of Denver, has developed a method of standardizing this procedure. A line is drawn from the right sterno-clavicular joint to the middle of the diaphragm on that side; this distance is then measured across the anterior base of the right chest; where such measurement terminates to the left of the sternum, a reasonably full inspiration is indicated and the film should be suitable, but when such line extends only to the sternum or falls to the left of it, a true picture will not be obtained. The radiologist, therefore, is responsible to an even greater degree than has heretofore been recognized for the clarification of the pathological processes going on in the chest, particularly in the various stages of tuberculosis. A constant check must be made with the clinical history and the physical examination if errors are to be avoided.

J. A. Myers<sup>7</sup> has very conclusively shown that contrary to our former opinion, the infant tolerates tuberculous infection well, especially after the ninth month when the death rate is



no higher than in infants of two years. Of 172 infants whom Myer found with positive skin tests, none, over two years of age and who were followed for a long period, and only six, died of tuberculosis. The probable reason for the usual high mortality in the very young rests in the fact that exposure is continuous and infection overwhelming. Krause has shown that the young of animals were no more susceptible than adults of the same species.

#### GASTRIC LAVAGE

Ulmar and Ornstein<sup>7a</sup> with many other observers, have shown that in many instances of pulmonary tuberculosis where the bacillus is absent in the sputum it may be demonstrated in the gastric contents. The mechanism of bronchial peristalsis permits the contents of the bronchioles to be raised to the level of the larynx and swallowed without the production of cough. In a series of 287 cases with repeated negative sputum examination, approximately 20 per cent yielded tubercle bacilli on examination of the stomach contents. The importance of this method of investigation becomes increasingly significant when the normal cough mechanism has been abolished or interfered with, as in pneumothorax. It is used with increasing frequency at the National Jewish Hospital in Denver and has cleared up puzzling invasions.

#### CONTROVERSIAL FEATURES

It would be strange indeed if a disorder so ubiquitous as tuberculosis, which has ravaged the race since prehistoric times and still remains unconquered, should not present many debatable issues. Its protean manifestations, its fulminating character on one hand and its chronicity on the other, with its complex pathogenesis combine to furnish problems to challenge the investigator in various fields of research. Among these questions awaiting solution perhaps the most immediate and insistent is the relation of allergy to immunity. When the first or primary infection is incurred, the tuberculo-protein developed in the growth of the bacilli produce a hypersensitiveness in the organism which we designate as allergy and which in time leads to the inflammatory phenomena associated with re-infection. As Dr. O. O. Miller<sup>8</sup> remarks, "we do not know whether allergy is a necessary concomitant of immunity, nor whether immunity fluctuates with allergy; it is certain, however, that marked al-

lergy, while an expression of relative immunity is a menace to the individual because it is the phenomena that brings about tissue necrosis."

If we consider the enormous number of individuals who show an allergic reaction to the comparatively few who die from tuberculosis, we must infer that the immunity response of the body is commonly successful.

A further subject of difference among clinicians and those engaged exclusively in research is the relation of the childhood type of tuberculosis to the adult form. Does a primary infection, such as has just been described, predispose to phthisis in later life? Men of equal rank are ranged here again on opposing sides, but the evidence at hand seems to favor the assertion that in most cases the bacilli of the first invasion die out long before adult life is attained. In addition it is a matter of common knowledge, that, in the adult, the location of the lesion is practically always apical with little or no hilar involvement, while the childhood type may involve any portion of the lung and is always accompanied by massive infection at the hilus. As a matter of fact numerous cases have been reported where the encapsulated, quiescent and obviously innocuous primary lesion was found in one of the lungs of an adult suffering from chronic ulcerative tuberculosis. Still other points of disagreement center about prophylaxis and treatment.

#### PROGNOSIS

From the most gloomy outlook for the infant afflicted with tuberculosis, recent opinions, based on the observation of large groups infected in early life, seem to warrant a happier prognosis. While it is true, as Comby asserted many years ago, that tuberculosis in infants is very grave, it is not inevitably fatal and instead of the 85 to 90 per cent lethality which was forecast for these unfortunate children, a more correct computation would probably not reveal a higher death rate than 35 per cent.

Naturally the younger the child the weaker the defense and the greater likelihood to become generalized. Bruce<sup>9</sup> contends that the prognosis is good providing tuberculosis or tuberculous broncho-pneumonia does not intervene; these of course, are accidental phenomena; they cannot be foreseen or avoided and are practically always fatal, but the primary, exudative, parenchymal lesion, accom-

panied by the allergic skin reaction, need not be considered as dubiously as we have been urged to believe in even recent years. Where an infected infant can be removed from its environment and given proper hygienic care, it is believed the danger of succumbing to this infection is infinitely reduced. Gasul<sup>1a</sup> gives the most encouraging review of this matter in his study of 404 tuberculous infants varying in age from four months to two and one-half years, who were followed for a period of from one to eight years afterward. Of 29 in the 404, who were infected during the first six months of life, there were five deaths or 17.2 per cent. Seventy-three of the series became infected during the second half of their first year; of these, five died—a mortality of 6.84 per cent. None of the infants infected after the age of one and one-half years died. The resistance, therefore, of the infant to a tuberculous infection, even during the first six months of life, is high, and a poor prognosis should be reserved until complications develop.

#### PROPHYLAXIS

It would be trite to the point of commonplace to declare that the control of the white plague hinges directly on the prevention of its spread through fresh invasions, and since many "trails of tuberculosis lead back to childhood," this further implies a different procedure than we are now practicing among those at the threshold of life. The appalling number of new cases reported annually, in spite of the unified energies of an army of devoted workers, precludes any hope of its early abatement; hence we must devise other ways and means to circumvent its propagation. Education has failed; propaganda has been ineffective; as Bruce fittingly observes, "we must do more than care for the active disease if we wish to accomplish anything in prevention." A specific attack only can avail because the prophylaxis of tuberculosis calls for as specific a procedure as does its treatment. Happily such a consummation is now not only possible but genuinely practicable, although public health authorities continue to ignore it. "Notwithstanding the fact that the danger of continued massive infection are generally known and thoroughly realized, Chicago<sup>10</sup> is, as far as we know, the only city or community in the world that legally enforces protection of the children and compels isolation of the non-cooperative case. It is unlawful

for the open case to reside in the same home with children; either the tuberculous individual or the child must leave the home" and this, of course, strikes the keynote of prevention. Separation of the sick from the well alone can bring us to the goal we seek. How are we to find the infected? By testing all school and pre-school children, and when positive reactions are found, investigating the family and the associates of these individuals. Every educational institution can provide such a survey at slight cost. It will be found that one of the chief sources of danger to young persons is the old man or the old woman with a chronic cough, supposed to be inconsequential but is, as a matter of fact, the cough of consumption and responsible for widespread infection in the family.

Infants among the indigent groups, born of tuberculous mothers or exposed to other open cases in the household, should be placed in special institutions or, better, provided with homes, as is the custom in France, where the Grancher placement plan has for many years been signally successful.

Where this is not permissible, the Calmette method of immunization should be employed. No fair minded physician can peruse the extensive reports now available from authentic sources in many countries, dealing with BCG inoculation, without reaching the profound conviction that we have at last found a safe, inexpensive and readily available agent for the protection of infants forced to live in an infected environment. Practically all of the original objections to this inoculation with an avirulent strain of bovine bacilli have been ruled out by the extraordinarily unanimous finding of clinicians in every part of the world, including those of Park, Overton, Kereszturi, Casparis and Childs in this country.

No discussion of the treatment of childhood tuberculosis will be undertaken, my chief concern in this paper being to present a summary of recent advances in prevention and control.

If I may be permitted to draw confusions from such a relatively superficial survey, I would offer two apparently logical deductions: Tuberculosis is definitely a preventable disease; its control and final elimination is the responsibility of the medical profession.

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#### DISCUSSION

DR. R. O. BROWN, Santa Fe, N.M. (Opening): In cases of tuberculosis in childhood I have seen certain clinical findings which have not been brought out here; I agree with Dr. Amesse in most of what he said about the symptoms in children; the child has an infection with tuberculosis on basis of x-ray, tuberculin test, etc., and also showed characteristics of mild infection, with temperature, over a long period of time. It has appeared almost characteristic of a person who has had tuberculosis recently that they run temperature from other infections longer than do the non-tuberculous whether the disease is active or not. I believe if more attention is paid to that that we would pick up some of these cases earlier. Dr. Amesse says he thinks the problem of prevention of tuberculosis is up to the medical profession. I think it is up to the community as a whole. It is in a great many ways a social problem. Of course in the New Mexico public health survey the most obvious cause for the higher tuberculin positive rate in the Spanish-American children appeared to be the size of the family. The Spanish speaking family, with their type of housing and association, are hard to educate along these lines, and I do not see how the medical profession is going to change it.

DR. AMESSE (closing): In a short paper like this I could not cover every feature, but I agree perfectly with Dr. Brown in his remarks.

This paper was based on a study of 1000 cases of tuberculosis in children in the hospitals in Denver I did not have time to show about 100 slides that I have prepared from these cases. They lead up to a demonstration of the children themselves before and after treatment, and then there are a great many pathological slides. The reason I maintain this problem is in the hands of the doctor is because he is the one who finds the case, and it is through him that the public must be educated and induced to separate the active case from the family. No one else but the doctor finds these cases, and it is the responsibility of the state director, the coun-

ty physician, the school physician and the supervisors of the clinics to demonstrate the importance of early detection of infection in any community, through examinations of the school child and the pre-school child; I believe the public will support us if we present our findings for the relief of these children.

## EVOLUTION OF TUBERCULOSIS IN CHILDREN

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Tuberculosis is primarily a family disease and as such has received considerable study. Opie<sup>1</sup> reviewed a series of families in which there was known exposure, and found 80 per cent infection and 30 per cent latent disease, compared with 30 and 10 per cent, respectively, for children in families with no tuberculosis. This study shows, that "tuberculosis begets tuberculosis," and the development of infection and disease is directly dependent upon the amount and frequency of infection.

We are still far from the objective of a tuberculosis free world. The fall in the tuberculosis mortality, from 195 per 100,000 in 1900 to 57 per 100,000 in 1933, is remarkable. Coincident with this continuous drop in the death rate, there has occurred a marked decline in the incidence of infection. Krause<sup>2</sup> states that the general estimates of tuberculosis infection are much too high, and that one-third of the entire population as infected, would be nearer the actual incidence. A lower infection incidence would mean a higher ratio of disease to infection.

The Committee on diagnostic standards of the National Tuberculosis Association has classified childhood type tuberculosis as that form of diffuse or circumscribed lesion in the lungs and associated tracheobronchial lymph nodes, that results from a first infection of the pulmonary tissue with the tubercle bacillus. These lesions usually begin microscopically, and the first indication of their presence in the living body is the positive tuberculin reaction.

The term childhood type tuberculosis is at times confusing. Tuberculosis in children and adults does not differ because of the age of the individual; it is the age of the infection that counts.

In the adult, the disease is the outcome of a

struggle covering long periods of life. Accepting the primary infection as defined by Parrot, Orth, Kuss and E. Albrecht, Ranke<sup>3</sup> built the theory, that tuberculosis is not a disease of one particular organ, but a chronic general infection, which, like other infectious diseases, develops in three phases. This major premise he proved from his vast number of post mortem examinations, seven cases of which were primary tuberculosis.

**The Primary Complex:** In the majority of patients, the tubercle bacillus enters the body by way of the respiratory tract. The germs follow the bronchioli and become lodged subpleurally. A patch of caseous pneumonia develops, varying in size from the head of a pin to a hazel nut, or it may involve a lobule or a lobe. Even in its early stages, the primary complex manifests itself by its effects on the pulmonary lymphatics. The connective tissue, following the small vessels and bronchi on their way from the primary focus towards the hilum, is increased and edematous, reducing, in parts, the smaller bronchi to mere slits. These inflamed lymph vessels drain the lymph of the primary focus into the corresponding glands of the hilum. The primary complex usually heals by resorption and calcification. Calcification is a typical way of healing, both in the nodes and in the primary complex. The primary focus may disappear, without leaving any traces, but the nodes will always contain calcified remnants of the tuberculous process.

**The Secondary Stage:** The primary complex may heal completely, and the disease may be arrested for lifetime. To the primary complex that has not healed, four ways of dissemination are open: First, it may spread by contiguity, i.e., the bacilli are carried through the intercellular spaces, for, though they are nonmotile; they live in a tissue which is subject to continual slight movement. When the bacilli find their way from intercellular spaces into a lymph vessel, then two further methods of dissemination are immediately opened. There may be a lymph metastasis or the bacilli may pass through the lymph nodes to the thoracic duct and to the blood stream; thus the possibility of a haematogenous metastasis arises. The fourth way of dissemination is, when a tuberculous focus breaks into a natural duct of the body. This is called canicular dissemination. The secondary stage, or the stage of generalization,

provides the greatest possibilities of dissemination.

The transition from the primary stage to the secondary is characterized histologically, by the onset of lymphocyte infiltration into the peripheral fibrotic zone of the node of the primary complex. A minimum of lymphocytes is noted in the primary stage, but their immigration into the new focus now becomes marked. The perifocal exudation into the surrounding tissue reaches its maximum. In this stage of generalization, the clinical picture may be brought to a close, after a few weeks by meningitis or miliary tuberculosis, after a few months with caseous pneumonia, or after a few years with chronic pulmonary tuberculosis, tuberculosis of the spine, or kidney, etc.

**The tertiary stage** is characterized by its location in the lungs and by its chronicity. Spread of the disease occurs by way of the canicular system, and there is a marked tendency to cavity formation. A thick fibrotic wall is characteristic of the cavity of the third stage.

**Diagnosis of Childhood Type Tuberculosis** rests upon the complex picture produced by a consideration of a history of exposure, symptoms, physical signs, tuberculin test and roentgen examination. The history of tuberculosis in the family is important, as 75 per cent of the children diagnosed as childhood type give a history of direct exposure. A good nurse, in the remaining 25 per cent, can always find the source of infection, as a grandparent, boarder, or friend, or other close associate outside of the family. The symptoms are indefinite, and vary in the individual case. Pleurisy, fatigue, loss of weight, dry cough, loss of appetite, and night cries are important in certain types of childhood tuberculosis. An occasional temperature of 99 to 100 is not uncommon, with no cause determined. Daily elevation of temperature, when the child has been at rest, should be carefully studied. History of measles, followed by a persistent fever of 100, is significant. Such communicable diseases as pertussis, and bronchopneumonia, are more frequently followed by bronchiectasis than by tuberculosis. Physical signs elicited over the chest offer little in the way of definitely conclusive evidence. However, every child should have a thorough physical examination with special attention, to the cervical region for enlargement of lymph



nodes and to the spine, hip joints and knee joints.

**The Mantoux or intracutaneous tuberculin test** is considered a very fine screen, being used in most clinics, where large groups of children are examined for tuberculosis. It is usually the first step in the examination. The advantage of the intracutaneous test over the Von Pirquet and other methods, is, that it is more precise. The dose of tuberculin given can be accurately measured. Between 23.6 and 41.6 per cent of children examined by this method give positive reactions. The first dose given is usually .001 mgm of tuberculin. If there is no reaction to this dose within three days or a week, a second dose of .01 mgm of tuberculin is given. In negative reactors, the dose of tuberculin is increased up to one mgm. If there is still no reaction, the test is discontinued, unless there are other conditions, indicating tuberculosis. In these cases, doses increased to 10 mgm may be given. However, many authors agree that one mgm is a maximum dose. The intensity of the reactions is recorded as one to four plus, depending upon the size of the area of erythema, the degree of edema, and amount of necrosis of the skin. Redness and edema in an area from 10 to 15 mm in diameter is designated two plus, extensive redness and edema of 15 mm or more is recorded three plus, and if there is necrosis four plus. Anxious and interested parents ask: What does a positive tuberculin test mean? A positive tuberculin reaction indicates an altered tissue reaction to the tubercle bacillus and its growth. The test means, that tubercle bacilli have entered the reactor's body, and that they have brought about the formation of anatomical tubercle. The test gives no definite information as to how long the area of disease has been present; it gives no evidence of the location or extent of the disease; nor does it inform us, whether the diseased focus is regressive or spreading. Workers with B. C. G. state, that the tuberculin reaction becomes positive within three to six weeks after the entrance of the tubercle bacillus into the body.

The tuberculin test is a qualitative one, and as such is highly specific. Many interesting data have been obtained in the past 10 years by tuberculin testing of probationers in nursing schools, freshmen of universities and others. Heimbeck<sup>4</sup> of Oslo, Norway, found approxi-

mately 48 per cent of the probationers reacted positively to tuberculin; after they had been exposed through a required tuberculosis service, without adequate protection, approximately 100 per cent reacted to the test. Tuberculin tests in American universities revealed the following: California 53.6 per cent positive, Minnesota, Wisconsin, Michigan an average of 28.6 per cent positive, and Pennsylvania 60.2 per cent positive. Long,<sup>5</sup> in analyzing these figures, calls attention to the fact, that as the east is approached, there is a rising incidence of tuberculous infection. This is reasonably explained on the basis of generally increased liability of contact with cases of tuberculosis in the larger centers of population. The one exception, California, in which a relatively high infection rate for students is recorded, may be due to the heavy immigration of tuberculous patients into this state, in the last 50 years.

Occasionally one sees a case of tuberculosis, which fails to react to tuberculin, with no explanation. More often, however, this is due to error in the strength and amount of tuberculin used, and perhaps to the interpretation of the test. A positive reaction in a child calls for further phases of examination.

Roentgenological studies are indicated in all positive reactors. In this way, we can learn the location, type of lesion, and extent of the disease. Tuberculous pneumonia, massive tuberculosis of the tracheobronchial lymph nodes, and the adult type of tuberculosis, are the more readily recognizable lesions by x-ray examination.

Tuberculous pneumonia is more frequent in children up to five years of age, occurring in three to five per cent. Willis<sup>6</sup> has shown, that these pneumonias have certain points, which make the diagnosis of tuberculosis almost mandatory. The features are: The long duration, the lack of stormy symptoms, the necessary presence of tuberculous infection, as evident by the tuberculin reaction, the presence of tubercle bacilli in the sputum, as demonstrated in numerous instances—different authors have reported the presence of tubercle bacilli in this type of cases in 50 to 63 per cent, the histological appearance of excised pulmonary tissue in a clinical case, and the reappearance of the pneumonic condition in children after injection of tuberculin.

In children over five, calcified nodules in the

lungs and lymph nodes are frequent. Calcification is one form of healing in tuberculosis, but it is usually surrounded by caseous material. Often, there is low grade activity in the nodes for years. Serial x-ray studies may show deposits of calcium in the area formerly occupied by the disease in the inflammatory stage in the lung parenchyma, and in the regional lymph nodes about the hilum.

After the 10th year of age, the incidence of adult type tuberculosis increases, and it reaches its peak between the ages of 18 and 25. The incidence of grave infection during adolescence and early adult life is becoming more evident. Hetherington,<sup>7</sup> in studying a group of 452 medical students, found tuberculous infiltrations in 4.1 per cent of the first year medical students; there was a rapid increase from year to year, being 11.6 per cent, in the second year students, 14 per cent in the third year students, and 20 per cent, in the fourth year students. Myers<sup>8</sup> presents figures, from which he draws the conclusion, that the chances of positive tuberculin reactors having or developing clinical tuberculosis in the next 10 to 12 years are approximately nine times greater than among the negative reactors. By tuberculin testing of pupils, and by x-ray studies of the positive reactors in the 8th, 10th, and 12th grades, a large number of early cases of pulmonary tuberculosis may be detected. Unfortunately, in most communities, many boys and girls in their teens—their most dangerous period—escape careful and constant supervision. It is from this group of boys and girls, that the numerous cases of adult type are recruited, who unfortunately present themselves to their physicians frequently in the far advanced stage.

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## TRAUMATIC, SLOW, INTRA-PERITONEAL HEMORRHAGE WITH DELAYED SURGICAL SHOCK

(Report of Three Cases)

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During the past five years I have operated three unusual cases of slow intraperitoneal hemorrhage, traumatic in origin. Although each of the patients was seen by three physicians, the diagnosis of hemorrhage was not made in either case until the patient had reached the stage of surgical shock.

These cases seem sufficiently interesting and instructive to warrant reporting, and the following is a resume from their hospital records.

We are all familiar with the classical picture of acute traumatic intraperitoneal hemorrhage with (and without) its closest ally, surgical shock. When the bleeding is rapid, the history, symptoms and findings easily establish the diagnosis. The primary problem is prompt and heroic treatment which is usually necessary as a life saving measure. When the bleeding is slow, however, the classical picture is distorted and too often in its early stage is unrecognized. Symptoms and findings are vague, poorly defined, and the exact status of the patient is difficult to determine. The primary problem in these cases, therefore, is altered and diagnosis becomes paramount in importance.

Early diagnosis not only points the way to proper treatment but allows the surgeon to operate while the patient is still a good risk. I have been painfully embarrassed several times by failure to recognize this type of hemorrhage until the patient was nearly exsanguinated.

Case No. I. A robust young laborer, 22, was harvesting wheat when he was accidentally trapped between a tractor and a threshing machine. He received a severe crushing injury of his left abdomen and back, with a deep laceration five inches in length over the left kidney region. When seen by the first physician a short time after the injury his chief complaint was left abdominal pain and tenderness. After examination the patient was told that his abdominal injury was probably not serious, but that he should enter the hospital and have the deep



laceration repaired. He was brought to the hospital approximately four hours after the time of injury.

On admission his temperature was 99.8, pulse 84, respiration 22 and blood pressure 110/70. The abdominal pain had become intense. The resident surgeon immediately administered morphia. Shortly afterward he was examined by a member of the staff. Both physicians noted tenderness and rigidity of the left abdomen but neither believed the findings sufficient to justify surgical exploration. Accordingly the laceration over the left kidney area was repaired under local anesthesia and the patient was returned to his room, apparently in good condition. During the next two hours the pulse rate steadily increased and the patient became restless in spite of the morphia. I saw him in consultation seven hours after the time of his injury. The clinical picture was typical of severe intra-abdominal hemorrhage and surgical shock. In addition to extreme pallor, profuse perspiration, air hunger and restlessness, he had a rapid thready pulse and shifting dullness in the flanks on change of position. The entire left abdomen was board like—characteristic of a perforation of a hollow viscus. The patient was immediately given 500 cc. of 20 per cent glucose intravenously and as soon as he rallied from the shock he was explored. The findings: (1) The peritoneal cavity contained at least two quarts of blood; (2) a loop of jejunum approximately 30 inches in length was badly torn, bleeding in four places, and perforated at one; the perforation was incompletely blocked by a tag of omentum; (3) the jejunal mesentery was badly torn and bleeding in three places. After repairing the perforation and laceration of the bowel and mesentery a Witzel type of jejunostomy was done (a short distance above the injured loop of bowel) and the abdomen closed with free drainage. The patient had a stormy convalescence, during which he lost nearly 40 pounds in weight but he finally recovered, and was dismissed one month from the date of his operation.

Case No. II: A healthy man, 20, was cranking a high-powered car. As he succeeded and stepped aside, the racing motor caused the fan literally to "explode." One blade was driven through the hood of the machine with terrific force and struck the young man in the lower left thorax, knocking him down and momentar-

ily stunning him. He was taken immediately to the nearest physician's office. Examination revealed a small perforation, one-half inch long, in the ninth interspace at the anterior axillary line. It was bleeding steadily, but not profusely. A large contusion surrounded the wound. There was moderate pain and tenderness in the left upper abdominal quadrant, especially under the costal margin, but otherwise the physical examination was reported negative. The wound was cleansed, one suture was taken in its edges "to stop the bleeding," and a sterile dressing was applied. The patient was told his injury was not serious and was advised to "go home to bed and forget it." Six hours later he awoke with marked air hunger and considerable pain in the left abdomen. On attempting to sit up he fainted. The family summoned a second physician. The wound was still bleeding, the doctor suspected, from an intercostal vessel. He administered one-fourth grain of morphia hypodermically and advised immediate hospitalization. The family demurred. A third physician thought the hemorrhage was coming from the thorax and advised exploratory thoractomy.

The patient was hospitalized at five a.m., (almost nine hours after the time of injury). On the way to the surgical floor, he again fainted. The radial pulse was not perceptible. A venoclysis of normal saline and glucose was started, external heat was applied, and one-sixth grain of morphia (hypodermically) was given. The patient rallied steadily and after 30 minutes felt much better.

The characteristic picture of profound hemorrhage and shock was obvious, and the pallor extremely marked. The temperature was 97 degrees, pulse 147, blood pressure 80/62. The lungs were clear and breath sounds were normal throughout. A roentgenogram of the chest was negative. The abdomen was slightly rigid and particularly tender to moderate pressure along the left costal margin. Percussion revealed shifting dullness. During the examination the wound began to bleed more freely.

A diagnosis of ruptured spleen was made and the patient was operated at six a.m., approximately ten hours after the injury occurred. The abdomen was opened under local anesthesia and the diagnosis verified. The spleen had received a perforating wound near the hilum and also a rupture almost its entire

length on the external surface. Under either inhalations, splenectomy was performed. During the operation, 500 cc. of normal saline and glucose were given intravenously. The abdomen was drained through the original perforation and the incision was closed in the usual manner. Before the patient left the operating room a direct transfusion (600 cc. of whole blood) was given.

The immediate postoperative condition was fairly good. A second transfusion was given the following day. Recovery was uneventful. The patient was dismissed from the hospital on the seventeenth postoperative day, in excellent condition.

Case III: A boy, 11, who fell from a tree and "jack knifed" on a bridge railing. The blow was across the upper abdomen. He fainted immediately and was groggy for several hours. The attending physician stated that at the first visit the boy appeared to have suffered a severe shock, but seemed to be gradually recovering. This was at four p. m., approximately four hours after the injury. A consultant saw the lad that evening and again at midnight, and thought he was doing satisfactorily. The pulse was slow, steady, and of good quality, and the patient's only complaint was tenderness in the upper abdomen. He had a good night but the following day seemed listless and apathetic. I saw him 30 hours after injury. He had abdominal soreness. The respirations were slightly increased; the pulse rate was 84; the temperature was normal. The abdomen had no rigidity. However, on palpation there was a vague sense of indefinite resistance throughout the abdomen. We felt something was wrong, but could not say just what the trouble was. Six hours later the consultant was nearly convinced that a surgical condition existed but decided the indications were not sufficiently definite to warrant surgical intervention.

Twelve hours later, without warning, the patient suddenly collapsed and almost died before he could be hospitalized. He was given stimulants and intravenous glucose (slowly) for five hours before he rallied sufficiently to withstand abdominal exploration.

Operation was done 40 hours after the injury. There were at least two quarts of blood and clots in the peritoneal cavity. The hemorrhage was from the gastrohepatic ligament. Three small branches of the gastroduodenal

artery had been torn and were bleeding steadily. The only other pathology was a loop of ileum 15 inches in length which was deep purple in color, the result of a severe contusion. While the damaged loop appeared viable it was necessary to do an enterostomy above the injury to prevent intestinal obstruction. A Coffey type of ileostomy was performed and the abdomen closed with drainage. Convalescence was stormy for a week. He was given several transfusions and large quantities of glucose intravenously and subcutaneously.

The following conclusions are drawn from these three cases: (1) Never underestimate the possibilities of any abdominal injury regardless of the history and the early findings; (2) keep the patient under constant observation until he is out of danger, in the hospital if possible; (3) make frequent and thorough examinations during the period of observation; the patient often "goes bad" rapidly; periodic red cell counts should furnish very useful information in this type of hemorrhage; (4) welcome and insist on consultation; someone may save you much painful embarrassment; (misery always loves company); (5) if unable to make a positive diagnosis or obtain sufficient evidence to warrant abdominal exploration before the patient collapses, always rescue him from shock before additional (operative) trauma is imposed; (6) finally, do not forget that slow intraperitoneal hemorrhage is a possibility in traumatic injuries of the abdomen; as Sir William Osler once remarked (about tuberculosis), one-half of the diagnosis is to know when to suspect it.

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## THE YOUNG DOCTOR OF ARIZONA.

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JOHN W. HUFFMAN, M.S., M.D.

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Mr. Toastmaster, Ladies and Gentlemen:—To be asked to talk on such a subject makes me wonder if I am to give a valedictory to my vanishing youth, or if I am to consider it a compliment to my inexperience. Its very ambiguity of title and breadth of horizon are youthful in their scope. Am I to be he who has seen his early years spent in sowing youth's seed on barren rock and stops only long enough in his dizzy descent toward senility to wave an admonishing finger toward his younger brethren warning them of the easy road ahead, or am I



that virile figure in the night riding exultantly upward shouting "Excelsior?" Perhaps the dignity of our profession has torn the young man from worship at the lesser temples of Venus and Bacchus and, by placing him in the solemn Aesculapian shrine, has added in untimely measure to his years.

We live in serious times. With our eyes blinded by the eddyings in our circumambient social and economic fog, how little do we realize the tremendousness of the changes occurring about us. Never before has it been given to any one generation to have lived in its infancy through a "revolution in Science, to have seen a new birth of Knowledge and a new dispensation of Health;" and still, while yet active in its maturity to have viewed the approach of a maelstrom out of which a new political structure may arise. To many of you Osler was a contemporary, Trudeau an associate, Lister still a living entity, and Pasteur a recent memory. Murphy, Billings, Virchow, Billroth—the men of Science who created our present system of medicine and the basis of our approach to the study of disease—were either in their brightest sphere of life or had but recently ceased their labors while you were still in the schools and the universities.

The young doctor is faced with many problems—financial, social, political, and professional. To some of us, in addition to these more mundane perplexities, there is a secret hope that we may not join with those of whom the son of Sirach says "Some there be that have no memory, who are perished as though they had never been, and are become as though they had never been born." In these days of political uncertainty, when untoward events occur with alarming frequency, it is consoling to know that in every age the physician has been tending his calling, a part of and yet apart from the civic changes of his time. Regardless of coup d'états, changes from democracies to despotisms, shifts from monarchs to dictators, from Imhotep of Egypt to the youngest intern of today we have been needed. Regardless of what tomorrow may bring, our talents will be required to assuage either the laryngitis of the politician or bind the wounds of the soldier.

If we are to listen to this secret hope of finding a line in Fame's archives, even though our name be but a dim one to some student seeking knowledge out of a dusty periodical on an ob-

scure subject, we will, in our endeavor to establish a place in posterity, have arisen far above the level otherwise ordained for us in our everyday life. It is impossible to attain to the highest degree of knowledge on any subject without having increased our comprehension of associated ones. How many of us in looking through a reference for an isolated fact have stopped on a dozen pages to gather additional information.

Because the young doctor of Arizona has no large hospitals in which to pursue intricate clinical studies, nor medical schools with which to associate himself, is no reason for his failure to develop an inquiring mind. Let us listen to the words of Sir James Mackenzie, who says, "If you but reflect what is the nature of the knowledge that is essential to medical research as I have endeavored to set it before you, and then consider the opportunity of the men who devote their time to research, you will be forced to the conclusion that one, and only one, class can carry out this particular but essential line of research—the general practitioner class. It follows then that research in clinical medicine must pursue lines of its own; these lines are not the loose speculative ones of bygone days but the precise and accurate observations on living individuals by means of which alone knowledge of real value can be obtained." That there are problems in clinical medicine which need clarification can easily be discovered by any of you who thumb through an occasional medical magazine. Many of the problems require biochemical or physiological laboratory equipment not easily obtainable by the young doctor, but there are other clinical entities which will afford hours of fruitful study with no more apparatus than the usual office equipment.

To others of us, who perhaps are not interested in becoming a number in the bibliography of "someone else," the necessity of improving our knowledge within our profession remains. William Osler, during the founding of the British Medical Library Association, emphasized reading as a part of postgraduate study. He said, among other things, that the average non-reading doctor might play a good game of golf or bridge, but that professionally he was a lost soul. "The driven and tired practitioner might plead that he could not find time to read. He could not unless he had formed

the practice in younger less busy days; then the habit of reading, like any other habit, becomes his master. It is to be remembered, however, that it is easier to buy books than to read them and easier to read them than to absorb them. With half an hour's reading in bed every night as a steady practice, the busiest man can get an excellent education before the plasma sets in the periganglionic spaces of his grey cortex."

Clinical research and postgraduate study are both concrete evidences of what is essentially a youthful attribute—inquisitiveness. By virtue of his inquisitive character the young doctor acquires the larger portion of the charity work in his community. Many times he does not consciously realize that his willingness to attend the poor is in reality a desire for wider experience in practical medicine. This rendering to society of a debt every young man owes is not to be considered as a drudgery but as a service to be performed. Neither is it wholly a gift. Out of it comes many times our first opportunity to meet interesting clinical problems.

The youth of which inquisitiveness is a characteristic is not necessarily one of calendar years. It is rather a type of mind. An interest in these things we have been discussing lies not in our years but in our attitude toward life and our profession.

Perhaps I have been more serious than the evening has warranted, but Youth is a serious age—an age oftentimes of indecision and vacillation. To those other young doctors of Arizona here tonight, regardless of the years they may have accumulated, I wish to quote that favorite statement of Osler's: "Pay no heed to the Batrachians who sit croaking idly by the stream. Life is a straight plain business, and the way is clear, blazed for you by generations of strong men into whose labors you enter and whose ideals must be your inspiration"; and in closing, to all of you, those lines from "The Salutation of the Dawn":

"For Yesterday is but a Dream  
And Tomorrow is only a Vision,  
But Today well lived makes  
Every Yesterday a Dream of Happiness  
And every Tomorrow a Vision of Hope.  
Look well, therefore, to this day."

## THE FIGHTING ARIZONA DOCTOR

Brigadier General J. B. D. Irwin  
1830-1917

(The Record of a Brilliant Surgeon Who Helped to  
Make Arizona Safe for the White Man.)

WILLIAM M. THOMPSON  
Bisbee, Arizona.

Even a brief sketch of such an active and eventful life requires knowledge of the man's antecedents and his early environment. If you are gifted with imagination, if you know his ancestors and environment, and have heard the bagpipes skirling as the Scotch and Irish guards marched to the trenches in Flanders, then you can understand the reason why the subject of this sketch came to the Southwest to help make Arizona a pleasant place in which to live.

He was born in county Roscommon, Ireland, of army people—Sir William de Irrwyn having been armor bearer to Robert Bruce. No doubt he was with Bruce at the Battle of Bannockburn and later accompanying him to Ireland. It is probable that later ancestors were in the defence of Enniskillin and Londonderry, the glories of which will live as long as the English language will live. The next year, 1690, may have found one of the clan in the Battle of the Boyne.

Such is the background of General Irwin. Physically, a tall commanding figure, erect to the last, the blue eyes, light sandy hair of the Scot,—just the type for the tasks that lay ahead of him. He received his early education from his father and tutors, and coming to America as a boy entered Castleton (Vermont) Medical School, later graduating from New York Medical College in 1852. While in New York he joined the famous Seventh Regiment National Guard. After a service in Emigrant Hospitals he entered the U. S. Army as assistant surgeon with the rank of lieutenant. It would take all the space at my disposal to note the activities of General Irwin as described in the brevity of army orders and citations, and that would prevent all but a mention of his signal service to Arizona.

General Irwin arrived in Arizona via the Santa Fe trail in 1855. He was Post Surgeon of



Ft. Union, New Mexico, Post Surgeon of Ft. Defiance, Oregon, Post Surgeon of Ft. Buchanan, Arizona. During the absence of the Commander at Ft. Buchanan, Assistant Surgeon Irwin, being next in command, carried out several brilliant and meritorious expeditions against the hostile Apaches. In the interim he did work as a surgeon which for endurance and surgical skill were remarkable. His first experience was with expeditions against the Navajos and Apaches in the northern part of the state. At Fort Buchanan the young surgeon was thrown on his own resources and had to assume the command of troops in battle and also act as surgeon.

The Territory of Arizona at that time was unexplored and, excepting one military road passing east and west through the southern part from Fort Thorn, New Mexico, via Tucson, to East Yuma, and one short road from Tucson to Sonora, there were no public highways. Little was known of the territory from the Navajos to the southern boundary.

Various tribes of Apache Indians occupied this region, and were to the unwary traveler caught by these roaming brigands. It was for his gallantry in action in the fight against the Chiricahua Apaches under Cochise that the General was awarded the medal of honor. His story of the forced march and battle is best told by the General himself. I have heard him tell it, but, to be accurate, I have taken his own story as published in the *Military Surgeon*, October, 1933, page 197.

### THE APACHE PASS FIGHT

By Brigadier General J. B. D. Irwin.

From an official report by General Irwin and published by Colonel Crimmins in the *Infantry Journal* of April, 1928.

"The Chief of the Chiricahuas at that time was Cochise, after whom the county of that name in Arizona has been called. He was then in the prime of life; tall and well favored in face and figure; about thirty years old and at least six feet in height. His presence was bold and warlike; presenting the attributes of a superb specimen of robust, physical manhood. Conscious of the evil reputation of his tribe and fearing that retribution for their many wicked deeds might overtake him, he declined all overtures and offers made to induce him to visit the military posts. The highway leading to and from Apache Pass was dotted with the graves or stone tumuli that covered the remains of the victims of his treachery; slaughtered by his blood-

thirsty followers, who were ever on the lookout from their mountain fastnesses for the approach of the careless wayfarers constrained to enter the dreaded pass in quest of water and transit through its range of heights. The writer has not forgotten the impression produced upon him, as, with a small cavalry escort, he entered for the first time the gloomy canon, enroute to the then recently established Fort Buchanan, on beholding the numerous stone-heaps that marked where the members of an emigrant party had but a short time before been cruelly murdered by the cowardly Chiricahuas.

"Only a few weeks prior to the occurrences of February, 1861, while Captain Ewell was encamped at the pass, endeavoring to conciliate the Chiricahuas with presents, two young Mexican girls—part of the spoils of a recent foray over the border—were discovered in their possession and were rescued by purchase from their cruel fate and restored to their parents. While detained there, awaiting the pleasure of the independent and haughty chief of the tribe, we were aroused one night by the arrival of a courier seeking our aid to succor a party, consisting of three discharged soldiers and their families, who had left our post shortly after our departure. Desiring to get through the dreaded pass, on their way to the States, while we were encamped there, they had been attacked, and two of the men, who had served as sergeants in the army during many years, were killed while defending their wives and children; their horses and mules carried off by a party of savages who had joined and camped with them during the night, partaken of breakfast, after which they withdrew to the screen afforded by a neighboring ravine from where they attempted the destruction of the party whose hospitality they had received only a few moments before! Such was the character of the Apache Indians of Arizona in 1861. One and all were then alike; treacherous, bloodthirsty, and cowardly, and ever on the alert to ambush small parties or incautious travelers when without risk of themselves, the chances were in favor of their success. Men had been waylaid and shot down within three hundred yards of the only post guardhouse in the territory in 1860, and the government herds had been stampeded repeatedly by Indians who lurked in the ravines and bushes in the vicinity of the military post, watching for a favorable opportunity to make a dash upon the coveted animals. All of that and much more of similar character occurred before the arrival of the 7th Infantry, in the territory and previous to the raid upon the beef contractors' cattle, that were trailed to the mountain home of Cochise.

"The owner of the stock, Mr. Wadsworth, having followed the trail until he became satisfied that his herd had been taken by the Chiricahuas, came to the post and reported the robbery and his convictions that the marauders were of that tribe, the commanding officer of the station, Col. Pitcairn Morrison, 7th Infantry, directed Lieutenant George N. Bascom to take 60 men of that regiment and with them follow up the trail until the cattle were found and recovered. In the event of the trail be-

ing found to enter the camp of Cochise, Bascom was ordered to demand the immediate restoration of the stolen property and in case Cochise should fail to make restitution, the officer was authorized and instructed to use the force under his orders in recovering it.

"From the foregoing explanations it will be perceived that the published statement asserting that when the 7th Infantry arrived in Arizona, in 1860, the Apaches were as well behaved and friendly a tribe of Indians as any in the States, was far from being correct. It is true that they refrained from attacking the government mail or wagon-train escorts of well-armed soldiers, but woe betided the luckless traveler, miner, explorer, or settler who ventured through the country without an adequate and vigilant armed escort.

"Lieutenant Bascom, having followed the trail of the stolen cattle to the stronghold of the Chiricahuas, marched his command to the mail-station situated within the pass and in the vicinity of the only water in that neighborhood.

"One of the station employees, Wallace, who was acquainted with Cochise, volunteered to go to his village to appraise him of the nature of the duty which had caused the troops to visit that place. That having been done, the Chief, accompanied by several of his people, visited Lieutenant Bascom's camp, but when demand was made upon him for the restoration of the stolen property he scoffed at the idea of force having been brought there to compel obedience on his part. Argument having failed to produce any effect upon the disposition of the Chief, Lieutenant Bascom then determined to detain him and some others of his party as hostages until the tribe should deliver up a captive boy carried off with the herd and surrender the stolen animals. That determination was only reached as a dernier resort after every effort at peaceful persuasion had proved futile. When Cochise was informed that he would not be allowed to depart until after the demand made by the representative of the government had been complied with, he arose from where the party was seated and yelling to his companions to follow him boldly dashed through the bystanders and with some of the warriors escaped into the adjacent ravines from where they, with others who had been waiting to learn the outcome of his visit, opened fire upon the occupants of the mail corral.

"Next day an Indian woman was dispatched with a message informing the Chief that the hostages detained would be taken to Fort Buchanan and confined there until the captive and the cattle were restored. The Overland mail-coach from California was attacked from a well-prepared ambushade on entering the pass that night, but, after a wounded horse had been cut adrift, miraculously escaped; the driver, with a shattered leg and with one of his passengers shot through the chest, having succeeded in getting the unwounded horses to pull the coach to the corral.

"There being several wounded men at the sta-

tion, one of the soldiers volunteered to attempt to lead a mule over the steep and untraveled hill-side and from the outside endeavor to escape during the night towards Fort Buchanan in quest of aid. The brave man having succeeded in creeping out without detection reached the mail station at Dragoon Spring early next morning and after receiving a remount arrived at the post during the second night of the weary and dangerous journey. On the same day, in response to the message sent him, Cochise approached the mail station with a white flag and called for a talk with the soldier captain, which was accorded. Lieutenant Bascom, two soldiers, Wallace, and two other mail employees, meeting the Chief with an equal number of his followers at a point about one hundred and fifty yards from the corral. The parley had hardly commenced when a sentinel posted on the roof of the station-house discovered a large number of Indian warriors crouching from view in a ravine close to and behind Cochise. The soldier called out and had scarcely concluded his warning when a dash to surround Bascom's party and to cut off his retreat was made, the warriors in the ravine opening fire on him as he fell back, but he escaped without injury although several rifle bullets passed through his clothing and one through his hat. Wallace and his companions, presuming upon their intimacy with the Indians, incautiously mingled with Cochise's party, were seized and dragged into the ravine, after which they were not again seen alive. At that critical moment the hostages attempted to escape from the guard; one of them was shot and killed and another knocked down and transfixed to the earth by the bayonet of a sentinel—the weapon passing through his abdomen without wounding the viscera, as evinced by his speedy recovery and his ability to walk with other prisoners a mile and a half to the place of execution where he and five other warriors were hanged seven days later.

"At that time there had been quite a heavy snow-fall at the pass which was used until it became impracticable to melt sufficient thereof to supply water for the men and animals at the place, after which it became necessary to resort to the spring situated about five or six hundred yards from the corral. On the third day after the outbreak part of the herd was driven from the station to the spring but ere the mules had reached the water the Indians pounced from all directions and succeeded in stampeding the animals but not until several of the guard and Indians had been shot down. As the attack was not unexpected part of the mules were detained to be sent forward after those sent to the water should have returned. The statement that 16 of them had been reserved to mount that number of men to ride back to Fort Buchanan in quest of the medical officer is simply ridiculous, as it would have been utterly impracticable for that number of men and animals to have departed without being discovered and captured by the Indians then surrounding and watching the movements of the beleaguered party. As it was, the success of the daring



soldier who during the darkness of night stealthily scaled the steep and pathless mountain side and groped his way out to the plain and rode thence to the post was indeed marvelous; surrounded as was the command by several hundred savages thirsting for the lives of the whole party.

"Soon after the arrival of the messenger at the post the writer volunteered to take a small but picked number of men and endeavor to reach the pass direct instead of going to Fort Breckenridge, about 100 miles northwest of Buchanan, to accompany two troops of cavalry then ordered to proceed from there to the assistance of Bascom's force. There being no mounted troops at Buchanan, 14 reliable infantry were selected for the hazardous service. James Graydon, a discharged soldier, who was ready for an adventure, joined us, and the party set out, mounted on mules, in the face of a heavy snowstorm. In that latitude the February days are short, and hence as 100 miles had to be traversed to reach the pass, it required two days to accomplish the weary and fatiguing journey, 65 of which, to Dragoon Spring were made during the first day's march. On the second day, while crossing a broad plain west of the Chiricahua mountain range, a party of Indians, evidently returning from a raid, was discovered driving a herd of cattle and horses. Pursuit was made and after a long and exciting chase and a running fight, extending over several miles, the Indians abandoned the stock, consisting of some 30 ponies and 40 cattle, all of which, with three Indian warriors who failed to escape, were captured. Knowing that the party to whose relief I was going was short of provisions, it was determined to drive the animals before us, and for the further reason that in the event of our being attacked within the pass our escape would be facilitated through the desire of the enemy to stampede and recapture the large drove of animals in our possession. The prisoners were secured and every precaution taken to defend ourselves through the long and tortuous passage leading to where Bascom's party was environed.

"On arriving at the entrance to the canyon a train of five wagons was found in the wash, plundered and burned. To the partially consumed wagon wheels the naked remains of eight human bodies were lashed—the unfortunate and unsuspecting victims having been captured, were stripped and tied to the vehicles and then slowly tortured to death by the burning of their outfit!

"How we escaped destruction should now be related. When the Indians ran off the stock from the spring they drove the animals out on the west side of the mountains, and while running them to the northwest they discovered a company of infantry on the march, changing station from Fort Breckenridge to Fort Bliss, on the Rio Grande. Suspecting that that force was marching to the east side of the pass for the purpose of attacking them in the rear, the Indians followed that command and thereby left the western entrance unguarded, and hence the escape of my small party which but for that

fortunate incident would undoubtedly have been attacked and inevitably destroyed.

"On reaching the mail-station, where our arrival was hailed with shouts of joy, as it was feared that the expected relief party had been intercepted and wiped out; the wounded were attended, and next morning, after the arrival of the two troops of cavalry, a scout through the southern part of the mountain range was made, but, on seeing the concentration of troops for their punishment, the Indians vanished in various directions. Two more days were spent in seeking the camp or village of Cochise which was found and destroyed. While on the march in quest of his home our presence disturbed a flock of buzzards some distance to the right of the trail leading to the chief's favorite camping ground, and, on riding over to the place from where the birds had flown, the ghastly remains of six human bodies, upon which the vultures had been banqueting, were discovered. The evidence was indubitable that the skeletons were those of the unfortunate Wallace and his companions and three other prisoners who had fallen into the power of the savages.

"It was then and there that it was determined to execute an equal number of the Indian warriors confined at the mail-station. It was I who suggested their summary execution, man for man. On Bascom expressing reluctance to resort to the extremity proposed, I urged my right to dispose of the lives of the three prisoners captured by me, after which he then acceded to the retaliatory proposition and agreed that those prisoners and three of the hostages taken by him should be brought there and executed, which, after full and deliberate consideration was accordingly done, two days afterward, when the troops marched by that point on their return to Forts Breckenridge and Buchanan. The punishment was an extreme mode of reprisal but was demanded and justified by the persistent acts of treachery and the atrocious cruelties perpetrated by the most cowardly and intractable tribe of savages infesting the territory.

"Instead of incurring blame for the extreme retribution inflicted, the commanding officer of Fort Buchanan was instructed that:

"The Department Commander directs that you will publicly express to Dr. Irwin, U. S. Army, and to Lieutenant Bascom, 7th U. S. Infantry, his approbation of the excellent conduct of those officers, and the troops under their command in the operations against the Apache Indians during the last month. He emphatically approves of Lieutenant Bascom's decided action in executing the Indian warriors, after the atrocious murders which had been committed by the tribe."

This is the General's description of the Bascom affair about which later historians have written such uncalled for and unwarranted criticisms. I have heard this version from the General himself, and I am glad to take this oc-

casion to clear Lieutenant Bascom of this column.

Another encounter with the Apaches under Cochise has been called the Battle of the Whetstone Mountains. Again I am going to let the General tell this thrilling exploit, but as I have ridden that country over on horseback, I must say this is about the roughest country you could get a horse through—canyons like great gashes in the mountain side, draws full of mesquite and catclaw in places almost impassable except by trails.

### "THE WHETSTONE FIGHT"

"In the affair of June 22, 1861, the attack on the herd guard of Fort Buchanan, Arizona, was led by a force estimated at upwards of 100 warriors. Three of the guard were killed and two severely wounded, and the post herds of cattle and mules were captured; the raiders dividing—one party driving the mule herd towards Mexico, the other the beef herd in an opposite direction toward the Whetstone Mountain. When the long-roll beat to arms less than a dozen persons were able to reach the scene of conflict. A vigorous pursuit was made and kept up under most adverse and trying circumstances over some 20 miles until the savages were brought to bay at a point where they were re-inforced by a concealed and numerous body of warriors on foot. Confiding in their overwhelming numbers they swarmed forth to surround the pursuing party, hoping to exterminate the little band for having had the temerity to pursue them, but after a severe conflict, in which the Indians had numerous killed and wounded, with only two of the pursuing party severely wounded, they withdrew beyond rifle range leaving their pursuers to retrace their steps after having punished them severely.

"During the conflict Cochise made repeated bold dashes to break through the fighting line, but was foiled by the telling effect of deliberate fire. Defeat to the party meant death to all. To show how near they were to extermination had the fight continued much longer, it was found that only two or three rounds of ammunition remained in the cartridge boxes of some of the party. At least seven Indians were killed, many wounded, and several of their horses were destroyed during the engagement.

"The following extract from the notes of Captain D. Robinson is deemed pertinent to further illustrate the nature of the engagement:

"The pursuit nearly led to our destruction. The officer, General Irwin, in command seemed to have the recovery of the stolen stock in view, regardless of consequences to himself or others. The trail ran through intricate gorges, and as we were about to enter one, the surgeon counseled caution before going further. A halt was ordered and no sooner made than we were assailed with a shower of arrows and defiant shouts from another band of Apaches that had been lying in wait to attack us in rear. Before we got out of that trap several sol-

diers were wounded slightly. The surgeon had a narrow escape; an Indian had been giving him particular attention, Graydon covered the Indian with his trusty rifle and sent him to the happy hunting grounds. By this time the sun was getting low,—our ammunition was nearly expended,' etc."

But there was quite a bit of surgery to be done in this wilderness. The General being the only medical officer with the detachments, had to care for all the sick and wounded. One of his most meritorious feats is described by the General in an article to the American Journal of Medical Sciences for October, 1859. I have taken the liberty of quoting this verbatim.

"On the 16th of September, 1858, I was requested to visit one of the stations of the Southern Overland Mail Company, where a number of men were reported to have been dangerously wounded. I set out at once, and arrived at the place early the next morning, after a smart ride of 115 miles, but found that three of the four wounded men had already died. The history of the survivor, Silas St. John, a strong, robust, healthy young man, of 24, a native of New York City, was as follows: He, with three Americans and three Mexican boys, was engaged in keeping the mail station. On the evening of the eighth, one of the latter was placed on guard, and the remainder of the party retired to rest for the night; about midnight the Mexicans arose, and with axes and a large hammer attempted to murder their sleeping companions. St. John awoke, and hearing blows given, was in the act of springing from his bed when he received a terrible blow from an axe, which almost severed his left arm from his body, followed quickly by another that cut the fleshy part of the same arm in a shocking manner; this was succeeded by another stroke that cut through the anterior external portion of the right thigh, a short distance below the joint. By this time he succeeded in grasping his pistol, and having fired at the desperate assassins, they fled and were seen no more. One of the unfortunate victims who slept outside of the door of the rude shed never awoke; another, with his face and head frightfully chopped and mangled, lived in great agony until the evening of the next day; while a third, whose head was almost cloven in two, the brain continually oozing from the shattered skull, lingered until the sixth day, during which time his frenzied craving for water to quench his burning thirst was of the most heart-rending character. On the evening of the next day the mail stage came by and found St. John, the only survivor of his party, alone in a rude hovel in the wilderness, without food or water, unable to move; his wounds undressed, stiffened, and full of loathsome maggots; his companions had died one by one a horrible death, and lastly, to add to the horrors of his suffering, the hungry wolves and ravens came and banqueted upon the putrefying corpse of one of his dead companions which lay but a few feet from his desolate bed. The mental and physical sufferings which he



endured are marvellous to think of. Yet he never complained nor flinched for a moment. Calm and resigned, he bore his torments with the fortitude of a martyr.

"After administering to his immediate wants, one of the mail party was left with him, and remained until my arrival on the 17th, at which time his condition was as follows: He was weak and pallid from loss of blood, sleep and constant mental and physical suffering; his disposition was cheerful, and he evinced much pleasure at the prospect of having his wounds attended to. A deep, incised wound, about eight inches in length, extending from the point of the acromion process, passing inwards, downwards, and backwards, laid open the shoulder-joint, passed through the external portion of the head of the humerus, and thence downward, splintering the bone through about four inches of its course. The wound in the thigh proved to be only a severe lesion of the soft parts, about eight inches long and three deep.

"After a careful examination, I saw it would be impossible to make any effort to save the arm; I therefore determined to remove it at once. The patient was informed of the necessity for the operation, and his permission was accorded almost cheerfully. The only assistance that I could command was from three of the men forming my escort. Having made a kind of bed of some bags of corn, the patient was placed on it. One of the men having been instructed how to compress the axillary artery, and the other assistants properly disposed of, I removed the limb as follows: The patient lying on his back, with the shoulder elevated, I placed myself on the outside, and grasping the arm, I passed the catling through the original wound, thence inwards behind the fractured point of the humerus, and downwards, forming a large flap from the anterior and inner aspect of the arm, which made up for the deficiency caused by the character of the wound, which left the superior-posterior aspect of the joint entirely devoid of muscular tissue. With the aid of a scalpel, the remaining portion of the head and neck of the humerus was removed from the glenoid cavity, the granulated surface of the old wound revived, and the arteries tied as quickly as possible, after which the edges of the wound were brought together and retained by interrupted sutures and some bands of adhesive plaster. Cold-water dressing was applied, with a light bandage suitable to the part. The wound in the lower limb was dressed by inverting the large fleshy flap, and retaining it in its normal position by several uninterrupted sutures. Cold-water dressing and the maintenance of the thigh in a semi-flexed position were the only requisites here. Forty drops of tincture of opium were administered, and the patient placed in as comfortable a bed as the meagre circumstances of the place would permit. Chloroform was not on hand to be given, and the only stimulus obtainable was a few drachms of essence of ginger. The celerity with which the operation was performed, and the fortitude and excellent disposition of the pa-

tient, saved him from everything like protracted suffering. In the evening, the tinct. opii was repeated, and proper directions having been given for the dressing of his wounds, I left him, having previously sent for some wine, brandy, and other nourishment. Of the former, eight ounces, and the latter, six ounces, were allowed him daily.

"During the night of the 23rd he arrived at the fort, having travelled in a common wagon 60 miles over a rough road during the two preceding days; and, as he was weak and fatigued, half a grain of sulphate of morphia was given him, and he was placed in a comfortable bed. Next morning I examined his wounds, and found the lesion at the shoulder had united by first intention, save at a point where the ligatures protruded. The wound in the thigh had partly opened. Proper dressings were applied, generous diet given, and the patient continued to convalesce without any untoward symptom. Most of the ligatures came away between the ninth and 12th days, and on the 15th the last, that from the axillary artery. Occasionally he suffered from frightful dreams, and imaginary pain in the lost arm. Whilst recovering, he had two attacks of quotidian intermittent fever, which readily yielded to quinine. On the 24th day after the operation he was walking about, and in less than six weeks he started for the Eastern States, restored to perfect health."

Can you imagine a modern surgeon riding 115 mile in incredible time over a rough country infested by savages, doing major surgery and getting a good result?

August 28, 1861, Assistant Surgeon Irwin was promoted to Captain. The advent of the Civil War called him east and he served with distinction as medical director of different divisions and armies. The first Tent Field Hospital was designed by Surgeon Irwin at the Battle of Shiloh, Tennessee. This hospital has served as a model for modern armies. Promotions and honors for gallant and meritorious exploits followed one after the other.

Reading over the many posts of duty in which the General served, it seems hardly credible that this can be the career of one man. In the Middle West, Post Surgeon of West Point Military Academy; West again; in 1882 back to his beloved Arizona, where he was Medical Director until October, 1885; his headquarters were at Fort Whipple; other duties followed until on July 27, 1892, he became Assistant Surgeon General.

General Irwin was retired from service in 1894. He was a member of the Public Health Congress in 1893; Vice President of the Association of Military Surgeons in 1893-94; Vice Pres-

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# Southwestern Medicine

Printed by THE A. C. TAYLOR PRINTING CO., Phoenix, Arizona  
Published monthly for the Board of Managers of the four constituent societies.

VOL XIX

MAY, 1935

No. 5

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## MEDICAL & SURGICAL ASSOCIATION OF THE SOUTHWEST

C. R. SWACKHAMER, M. D.	Superior, Ariz.
J. G. MOIR, M. D.	Deming, N. M.

## BIRTH CONTROL LEGISLATION

Two bills, one S. 1541, introduced by Senator Hayden of Arizona, and the other H. R. 5370, introduced by Representative Higgins of Massachusetts, are now before the Post Office sub-committees of the Senate and the House; the bills were introduced at the request of Postmaster General Farley. The bills provide for the prosecution of senders or receivers of obscene matter through the mails, including contraceptive literature and supplies.

Congressman Pierce of Oregon submitted an amendment exempting physicians, hospitals, clinics and medical schools from the restrictions of the bill in matters relating to contraception.

There seems to be a definite unfairness intended as The Rhythm, which is a booklet on the fertile and sterile periods of the woman, is allowed to pass unmolested through the United States mail apparently because it is published with ecclesiastical approbation; it may go into the hands of everyone, physician, lay person, adolescent or adult, whereas contraceptive literature and supplies is forbidden to pass through the mails. It is notorious that the law regarding contraceptives already prevailing are constantly, repeatedly, and openly violated. It would seem scarcely justified to make laws more stringent when public opinion is so against the present laws on the subject that they are not enforceable; no matter how stringent such laws are made their enforcement will be impossible. There are certain human urges, god given, which man made laws will likely not greatly influence; education will do more. Laws must be reasonable.

When the Arizona Statutes were re-codified in 1928, there was injected a prohibition on the distribution of information, in any form whatsoever, regarding contraceptives. If and when the Governor calls a special session of the legislature he should be persuaded to include the Public Health Measure in the call in order to repeal this law, which found its bizarre way to the Statutes. Every adult, and certainly every physician, knows contraceptives are shipped from the factory to all parts of the country even without medical advice or instruction. As the law is being so thoroughly violated at the present time, it should be changed.

## SOCIALIZATION OF MEDICINE

The term as used in the heading implies doing things by a group rather than as individuals. There is no question but what there is plenty of argument for socialization of medicine. The question seems to be of how far to go.

In Middletown, Michigan, it has been said, after thorough investigation, that there are 50 local doctors spending much time waiting for patients while at the same time 38,000 of the community have physical abnormalities needing correction, relatively few of which obtain treatment. Certainly the best medical scheme is not being used to cure these difficulties. The point we must not forget is: The evolution of progress during the last 100 years has been toward giving more consideration to groups than to individuals. Progress seems to be essentially the result of doing things as a group. Yet when there is too much regimentation progress is prone to cease.



In medicine there certainly has been an increasing degree of socialization. Instance the organization of public health agencies, workman's compensation legislation, the development of hospitals, research, etc.; the veterans bureau and its activities are all examples of socialized effort. We must not forget that more and more the maintenance of the health of the people is being considered as a duty of the state as well as of the individual. Further there is the statement that over 70 per cent of the hospital beds are maintained by federal, state or municipal agencies. We already have much socialization of medicine.

**Therefore it is not a matter of having it or of not having it, but of entering into its spirit and seeking to guide its development.** The difficulties are tremendous of course; no two communities have exactly the same problems; hence it would seem that the best scheme is for organized medicine of each community to set to work immediately toward solving the problem for itself. It is well not to go too fast; it is certainly well not to go too slow. The extreme of the socialized effort for medicine is state medicine. Whatever happens, the control of the situation must remain with the medical profession. We must be made to understand that whatever we do the interest of the public is our first concern.

Dr. F. B. Littlefield in a paper published in this issue says that there should be a live-wire medical economics committee in each county society to sift and analyze the various plans, for giving medical care to the low income groups, which are being tried out throughout the United States.

As emphasized by Dr. Rexwald Brown in a paper also being published in this issue, the people generally are not antagonistic to the medical profession. The various foundations which have been interesting themselves in medical economics are really desirous of cooperating with us and desire not to antagonize us.

#### **PENNSYLVANIA EMERGENCY MEDICAL RELIEF SURVEY.**

After one year of operation of the emergency medical relief administration, Dr. Moses Behrend states that physicians have been remunerated in Pennsylvania to the extent of more than one and one-half million; less than one-

half of one per cent of the physicians have been accused of over charging for their services; 10,000 physicians of the state participated in this program. The chief cause of the failure of the program to function as it should have functioned was due to the fact that the administration failed to pay bills promptly. There seemed to be a tendency on the part of the physicians to consider it their duty to keep the charges at an irreducible minimum without considering the justness of the charges.

The administrators in Philadelphia comment that the plan has worked successfully during this first year of its use. He states further that the present free medical attention plan must not be extended to the indigent groups because it would result in a spirit of moral degeneration toward the necessities of life.

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#### **CULTIST LEGISLATION IN OREGON**

Into the legislature of Oregon was introduced naturopath and chiropractor bills, each providing for compulsory annual post-graduate courses upon which would depend the annual renewal of licenses of the respective cultists in that state. The chiropractor bill even named the institution at which the courses were to be taken. It seems that the purpose of these bills was to circumvent the basic science law and to increase the number of students in these two types of schools in Oregon.

A diploma mill for "bastard" medical degrees loses its students in a basic science state. The purpose of the bills was to compel the cultists to attend college each year. Then, too, if a cultist attended college—even only a diploma mill—in complying with the law it certainly would be implied, at least, that such training fitted him for practicing the healing art—chiropractor or naturopath; the question then might well be raised as to whether the persons having the legally recognized training, might not be exempt from the basic science law.

The Oregon legislature passed a law making it compulsory for every practitioner of any branch of the healing art to specify its type in all places where any mention is made of his being a "healer." A penalty for the violation was provided. A cultist in Oregon can no longer hide his lack of training behind the general title of "doctor."

### ALBERT G. MILBANK

Mr. Albert G. Milbank, president of the Milbank Memorial Foundation of New York, was invited to Indiana to discuss the attitude of the trustees of this Foundation toward the question of socializing medicine. In the editorial of the Journal Indiana State Medical Association for March, the editor comments upon Mr. Milbank and his address.

From this we learn that Mr. Milbank is a gentleman of unusual attainments, pleasing personality, and a member of the New York Bar.

The impression was gathered by the Indiana editor that Mr. Milbank did not wish to force his ideas upon the medical profession but that he wished to get viewpoints of the profession upon the mutualization of medical care for the vast group of people who are not well to do. He said that in reality the views of the trustees of the Milbank Fund and those of the American Medical Association are not in great discord. He believes that the relation between the physician and the patient must be maintained as at present and that the group of persons who are above the low income group should pay physicians as they have been doing. He recognizes that dangerous factors have arisen in most of the insurance schemes. He recognizes also that they have caused malingerers, racketeers, and chisselers, not to mention the ubiquitous politicians.

The editor concluded his discussion of Mr. Milbank by saying that he seemed to be a thoughtful, considerate individual who had come to meet a progressive group of professional men to discuss with them methods of assuring better medical care to low income groups. "It would seem," Mr. Milbank says, "that the opponents and the proponents of the insurance schemes probably think along much the same lines, but have different plans because they have not gotten together to talk things over."

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### AMERICAN UROLOGICAL ASSOCIATION

The western branch of the American Urological Association will hold its 32nd national convention in San Francisco, June 24-28, 1935. Headquarters will be at the Palace hotel. Professor H. Hampton Young of Johns Hopkins University, will deliver the Ramon Guiteras Lecture on "The Abnormalities and Plastic

Surgery on the Genitourinary Tract." All of the usual entertainment connected with a convention will be provided including a golf tournament. All physicians especially in the western hemisphere are invited to be present.

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### ACADEMY OF PHYSICAL MEDICINE

This organization will have its annual meeting June 12 and 13 at Atlantic City, New Jersey.

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### OVERHEAD IN MUTUALIZATION OF MEDICAL COSTS.

In considering plans for medical services to the low income groups Dean C. H. Bardeen of the medical school of the university of Wisconsin stresses that the danger lies in adding to the overhead to such an extent that medical attention will become more costly than it should. Of the many schemes which he has studied the cost of medical attention invariably is increased. If the cost does not exceed 10 per cent the probabilities are that both the public and the profession will be benefited; in some schemes, however, the overhead has run as exorbitantly high as 40 per cent.

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### AMERICAN ASSOCIATION FOR THE STUDY OF GOITER.

This association will meet July 24-26 in Sal Lake this year. A review of the tentative program indicates that the meeting will be a most interesting one. There are speakers on the program from Los Angeles, San Francisco, Rochester, Minnesota, Denver, Chicago, Ann Arbor, Seattle and Winnipeg. Clinics will be held.

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### THE AMERICAN PUBLIC HEALTH ASSOCIATION

The western branch of this association will meet in Helena, Montana, July 1-3. The program is prepared by president-elect W. F. Coghwel, M. D. Particular attention is to be paid to problems of health among the Indians and to diseases commonly found in the West. Among the prominent speakers will be Dr. A. J. Chesley, State Health Officer of Minnesota, Dr. Thomas A. Parran, Health Commissioner of New York, and Dr. E. L. Bishop, Medical Director of the Tennessee Valley Authority.



### CHILD HEALTH DAY

May first was "Child Health Day." The effort is being made this year to have physicians take special interest in having children immunized against diphtheria. This is a worthwhile project and offers an opportunity for physicians to assume their right to leadership in preventive medicine. It would seem to us that a county society might well circularize all parents of a community, asking them to take their children to their family physicians to ascertain if they are sensitive to diphtheria, and if so to have them immunized. The death rate from diphtheria has been reduced but very little since 1930.

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### OSTEOPATHIC LICENSING BOARD

An effort is being made by the Illinois osteopaths to obtain a licensing board separate from the medical examining board. This would seem to be opening a channel to legalize osteopaths to do surgery, and all other sorts of medicine. Under the present arrangement in Illinois osteopaths have been obtaining licenses through the medical examining board to do only osteopathic work.

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### THE AMERICAN NEISSERIAN MEDICAL SOCIETY

The annual meeting of this group will be held on June 11, 1935, at the Claridge Hotel, Atlantic City, New Jersey. Six formal papers will be presented. After each group of papers there will be a discussion. Dinner will be served at 7:30. All interested are invited to attend this meeting.

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### AMERICAN PROCTOLOGIC SOCIETY

A meeting of the above named organization will be held at Atlantic City, Monday and Tuesday, June 10th and 11th with headquarters at the Marlborough-Blenheim. The presidential address will be given by Dr. L. A. Buie, Rochester, Minn. A glance at the program convinces us that it will be an interesting meeting.

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### ATTENTION, PHYSICIANS OF ARIZONA:

The Medical Practice Act was amended by the legislature so that each physician, on or before the 14th of June of each year, must pay to the Board of Examiners an annual registration

fee of \$3.00. In case the fee is not paid by that day, there will be a penalty of one dollar for each day the fee is unpaid up to fifty days; after this time if the fifty dollars is not paid at the end of three years the physician's license may be revoked.

The Act was also amended so that it no longer reads that "the Board will be constituted of one Eclectic, one Homeopath, two Allopaths, and one Osteopath," but now reads "Four physicians and one osteopath. The Act amended makes the practice of medicine without a license a felony.

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### MALE NURSE GETS TWO AND HALF YEARS.

We have been informed that a male nurse who has been advertising himself as a physician and who has been practicing medicine, was held with a bad check charge. They were unable to successfully prosecute him on the other charges.

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**District of Columbia Medical-Dentist Service Bureau:** This bureau has been in existence better than a month and during this time about 50 persons applied directly to the bureau for help in planning the payments to their doctors and dentists. One hundred and eighty-nine members of the medical society have signed up to cooperate; 487 have not as yet signified their intention of cooperating with the bureau. It seems that this plan is modeled closely after the San Diego plan.

One sentence from the literature distributed to the public says, "The bureau is a part of the medical and dental profession with a qualified staff to work out their costs for medical care which may be paid for in small regular payments." Another statement is, "Ask the doctors and hospitals to let you use their bureau to arrange for the payment of their bills."

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### THE NEWS COLUMN

Turn to page 174 and note that the news items have increased many fold. Various physicians have manifested a keen interest in this column and are sending in items. Let every physician keep this column in mind; inform your editor about any important happenings to you or your confreres.

## THE MEETING OF THE ARIZONA STATE MEDICAL ASSOCIATION.

The meeting this year was held in Phoenix and while there were several guest speakers the program in the main was provided by the members of the state association. The program was of high character; many of the papers provided by the local members compared most favorably with those provided by the guests. The attendance was gratifying and there were few or no sour notes in connection with the meeting.

### PHYSIOTHERAPISTS AS HEALERS

Now comes physiotherapists seeking a board of examiners to examine them in anatomy, physiology, chemistry, pathology, diagnosis, treatment, bacteriology, massage, therapeutics, clinical physiotherapy and "such added subjects as shall subsequently be taught by accredited schools of physiotherapy." A bill to provide for such a board was introduced in the Georgia legislature. This is another scheme to create doctors by legislation rather than by education. Now is the time, doctors of the Southwest, for you to educate your patients upon this program of the physiotherapist.

### OBITUARIES

Dr. Charles Fletcher Milligan of Clayton, New Mexico, died Saturday, February 2, 1935, at the St. Joseph's Hospital. Dr. Milligan was 55 years of age. He was a graduate of the Kansas City Medical College in the class of 1907. He practiced in Kansas, Southeastern Colorado and West Oklahoma, coming to Clayton in 1919. He saw service in the world war as Lieutenant in the navy, having been stationed in San Diego, California.

Dr. Milligan's activities at Clayton were such as to command the highest respect from his neighbors and friends. He was a member of the Clayton Rotary Club, American Legion, and member of the official board of the Methodist Episcopal Church. He was president of the New Mexico State Medical Association and secretary of the Union County Medical Society. He was a fellow of National Academy of Pediatrics. His funeral is said to have been one of the largest in that county for many years.

He is survived by his widow, his father, Dr. Thomas F. Milligan, a brother of Washington,

D. C., two sons, Lawrence and Vernon, and two daughters, Ione and Ruthie. The theme of the services preached by Rev. George Berry was, "He was an honorable man."

Dr. Sidney Manson Edmondson of Clayton, New Mexico, died March 2, 1935, at the age of 53 years. Dr. Edmondson attended the Davidson College and the North Carolina Medical College of North Carolina where he graduated in 1903. Immediately after graduation he began his practice of medicine.

During the World War he served as Captain on the Tuberculosis Board; he left this to go to the aid of the Clayton community because of the epidemic of Influenza.

Everyone in Clayton community loved Dr. Edmondson. He was active in civic and political affairs as well as being a member of many social clubs.

Dr. R. P. Martin of Taos, New Mexico, died Thursday, April 11, 1935. He was 71 years of age. He was graduated from the College of Physicians and Surgeons in Baltimore in 1887. Dr. Martin served in the aviation section of the Army during the World War; he had been president of the New Mexico State Medical Society; and he was health officer of Taos County for several years. For decades Dr. Martin practiced at Taos, treating practically all of the Taos Pueblo Indians, and most of the distinguished visitors to the picturesque mountain artist and author colony. He was one of the widest known "country doctors" in the nation.

### NEWS

The present officers of the Grant County, N. M., Medical Society are: President, Dr. J. C. Mitchell, Hanover, N. M.; Secy.-Treas., Dr. B. A. Johnson, Santa Rita, N. M.

Dr. Edgar B. Beaver of Aztec, Dr. E. F. McIntyre of Santa Fe, Dr. Julian O. Long of Las Cruces and Dr. Frank W. Parker of Silver City, all of New Mexico, went to Baltimore to take an intensive course in Public Health at the Johns Hopkins University. Dr. L. A. Dewey of Dawson, N. M., is completing his course for the C. P. H. degree at this same university. These doctors are candidates for positions under the new Health District Act.

Dr. Parker, Albuquerque, traveled East by air with his wife and six-weeks-old baby.

Governor Clyde Tingley of N. M. appointed Dr. F. F. Doepp, Dr. Tobias Espinosa, Dr. F. H. Johnson, Dr. J. M. Doughty, and Dr. E. L. Ward as members of the State Board of Medical Examiners.



The new Board is recommending an annual registration tax similar to the Colorado Law.

At its first meeting the Board granted practicing licenses to M. E. Eck, Fort Stanton; J. Austin Trowlan, Dawson; E. R. Kelsey, Albuquerque; W. Roth, Dulce; Richard C. Bellamy, Glenwood; A. A. Wolfson, Portales; Dr. Walter I. Werner, Albuquerque; Robert Harrison Graham, Clayton; J. F. Smith, Gallup, all of New Mexico; and William A. Fahey of Tucson, Ariz.

Dr. C. F. Milligan, president of the New Mexico Medical Association, died on February second.

Dr. S. M. Edmondson, Clayton, N. M., died on March second and Dr. T. P. Martin of Taos, N. M., died on April 11.

The El Paso County Medical Society elected Drs. Ralph Homan, Charles Rennick, and Orville Egbert as their committee managers for the medical attention which is to be given the indigents and low income group.

The county attorney's office of Maricopa County, Arizona, according to a newspaper story, has preferred charges and arrested a man who formerly held himself out as a graduate nurse but more recently has been assigned the title of doctor. It is alleged that he has been practicing medicine. We congratulate the attorney's office of Maricopa County.

Dr. W. M. Thaxton, Camp Surgeon, C.C.C. Camp, F-63-A, located near Patagonia, Arizona, attended the April meeting of the Santa Cruz County Medical Society.

Dr. J. S. Gonzales, Nogales, Arizona, accompanied by his wife, recently attended the midwinter clinical association meeting in Dallas.

Dr. T. B. Fitts spent several days recently in Phoenix attending the K. of P. convention.

Dr. A. L. Gustetter has returned to Nogales, after spending a short vacation in Los Angeles. We further understand that during the Phoenix meeting he took unto himself a wife.

Dr. E. C. Houle addressed the Santa Cruz County Medical Society on April 15th, the title of his paper being "Calcium in Therapeutics."

Dr. Elijah Jones, 86-year-old retired physician resident of Phoenix for 20 years, died during April of this year. He formerly practiced in Kansas.

Dr. A. M. Tuthill, major general and commander of the national guard troops for Arizona, Colorado, New Mexico and Oklahoma, was chief umpire April 14, at the exercises for national guard and reserve officers, just west of Tucson.

Superintendent of the Arizona state board of health Dr. George C. Truman has been invited to attend the fourth International Congress of hospitals in Rome. The congress consists of representatives from practically every country and the program stresses social sanitary assistance and hospital construction and care. Dr. Truman has been reappointed by Governor B. B. Moeur as state superintendent of health for the next two years.

The newspapers carried a brief notice to the effect that Dr. and Mrs. Charles Long of Westmore-

land, California, were placed under arrest for the possession and sale of narcotics. Mrs. Long was released on her own recognizance.

A Phoenix newspaper announced the death of Mrs. Bessie V. Cushman in Los Angeles with the statement that she was a practicing physician of Chicago before she came to Arizona. She made Arizona her home for many years and was in great demand for social and club functions.

Dr. Harry D. Atwood, Ajo, Arizona, spent Monday, April 8, in Phoenix upon matters before the Industrial Commission.

Dr. A. C. Dick has recently located in Kingman, Arizona. He is a graduate of the University of Chicago in the class of '31, and interned in surgery at the Billings Hospital for one year, after which he spent a year at the Kansas State Tuberculosis Hospital. He traveled for a number of months looking for a location, finally deciding on Kingman. He is married and has one child.

Dr. Orville Harry Brown, Phoenix, Arizona, spoke before a meeting of the Kenilworth parent teachers association during "Hard of Hearing Week" in behalf of the Hard of Hearing League of Phoenix.

Dr. W. P. Sherrill, pediatrician of Phoenix, Arizona, addressed a Phoenix parent teachers association during March upon the subject of "Child Health."

Dr. K. E. Miller of the United States Public Health Service attended the Arizona State Medical meeting and took part in the discussion in the symposium on "Medical Economics."

Dr. Owen E. Heninger, B.S., of the University of Utah, graduate of medicine of the University of Chicago in the class of '33, interned at the Los Angeles County Hospital; he has located in Safford, Arizona. He is married and has three children. He is especially interested in allergic diseases.

Dr. Fred A. Kennedy, San Carlos, Arizona, an associate member of the Southwestern Medical Society, was recently elected President of the Arizona branch of the Indian Service Medical Society.

Dr. A. K. Duncan, of Douglas, Arizona, after conclusion of the Arizona State Medical meeting went for a short visit to his old home in New Orleans, and intends to attend the Louisiana State Medical meeting. Dr. Duncan was formerly Assistant Professor of Surgery at Tulane.

Dr. Harry R. Carson, pediatrician of Phoenix, Arizona, is now back at work after five months of illness confining him to his home. He appears to be in better health than ever.

Dr. I. L. Garrison, Phoenix, has been appointed assistant county physician to succeed Dr. F. M. Kilgard, who resigned to devote his entire time to private practice.

Dr. Leslie Kober, Phoenix, Arizona, was chairman of the recent horse show and polo tournament sponsored by the Phoenix Junior Chamber of Commerce.

Dr. M. K. Mihran, Phoenix, who is in charge of the Phoenix Indian School Sanitarium, is away at the present time taking a postgraduate course at the Trudeau Sanatorium, Saranac Lake, N. Y. His

wife and young son and daughter are with him.

Dr. Wallace Green has been visiting his parents, Mr. and Mrs. W. W. Green, here in Phoenix for the past few days. Dr. Wallace Green is a graduate of Stanford in 1932. He interned in surgery for one year at the Stanford Hospital. He took a second year of surgery at the John Hopkins University. For the past year, he has been assistant surgeon at the Stanford Hospital. Beginning July of this year, he will be House Officer of the San Francisco City and County Hospital.

## PUBLIC HEALTH NOTES

**J. Rosslyn Earp, Dr. P. H.**  
**Director New Mexico State Bureau of**  
**Public Health.**

**Alum toxoid reactions:** During February there were reported from four counties unusually severe reactions from the use of alum toxoid. A warning telegram from Santa Fe sent to 10 other counties that were also using the same alum toxoid brought in a report from one of these counties that they too had experienced severe reactions.

Careful check of the serial numbers on the vials used in these five counties disclosed the fact that all the reactions came from a single "lot" of alum toxoid. This "lot" of toxoid had twice been approved by the National Institute of Health, both before and after precipitation with alum. Doctor McCoy, on re-examination of the toxoid, reports again that regular and special tests applied to this lot of toxoid give satisfactory results. Blame for the reactions experienced can not be placed on the manufacturers. They themselves made an exhaustive examination and were unable to find any abnormality. Their medical director suggests that the severe reactions may have been due to the alum precipitate having been injected into instead of beneath the skin. This explanation is unconvincing because the health officers and nurses in question have used a very considerable amount of this alum toxoid in the past without getting severe reactions. It is improbable that five persons should suddenly and simultaneously develop a weakness in technique and all of them happen to be using at the time the same "lot" of toxoid.

**Dysentery:** The reports on dysentery in West Virginia made by Dr. George M. Lyon<sup>1</sup> deserve the careful attention of physicians of the Southwest. Doctor Lyon points out that "in 1930 the death rate from diarrhea among children under two in West Virginia was 70.7 per 100,000 population. This was the highest rate reported, except in New Mexico and Arizona, and it was nearly twice the next highest rate reported." He compares this rate with rates of 4.6 for Oregon and 5.4 for Washington in the same year. Our own rates for 1930 were 99.8 for New Mexico and 76.5 for Arizona.

In a group of 300 children under private medical care in Huntington 37 per cent had dysentery in the first five years of life. A control group from a dif-

ferent social level (Huntington Baby Welfare clinic) had more dysentery—72 per cent. "By far the most significant factors common to all groups were the presence of patients with dysentery, heavy infestation by flies and improper disposal of sewage." Doctor Lyon notes that dysentery is more common and flies more abundant in hot, moist weather than in hot dry weather. Here we have only hot dry weather but we have plenty of flies—and dysentery.

**Maternal Mortality:** Hitherto it has been possible to excuse the high maternal mortality in the United States on the ground that methods of assigning deaths to puerperal causes differed in different lands. Dr. Elizabeth Tandy<sup>2</sup> by a very thorough statistical study has dissipated this excuse. "Rates for the United States estimated in accordance with the assignment procedure of the respective countries are in every instance except Scotland in excess of and are in five instances more than double the official rates of the countries themselves. No matter what method of procedure is used, the United States retains an exceedingly high rate as compared with other countries."

Differences in definition of "live birth" and completeness of birth registration were also studied. Neither factor was found to have importance in the comparability of national rates.

The fact is, we suffer here, as often, from our incurable idealism. The United States long ago set as its goal a hospital bed for every parturient woman. It will be a great many years before this goal is reached, and in the meanwhile a large proportion of deliveries are conducted by women of the Sarah Gamp type now extinct in Europe.

1. Lyon, G. M. (1) Infant Mortality Studies in West Virginia. W. Va. Med. J. 30: (July) 1934.

(2) Bacillary Dysentery as Observed among Normal Children in Huntington, West Virginia: Am. J. of Diseases of Children, 49:367 (Feb.) 1935.

2. Tandy, E. C. Comparability of Maternal Mortality Rates in the United States and Certain Foreign Countries: Children's Bureau Publication 229, Washington, 1935. (Price 5 cents.)

## THE SAN DIEGO PLAN

**HALL G. HOLDER**  
 San Diego, Calif.

(Remarks made before and during the reading of his paper; as the doctor prepared his paper on the train coming here, he took it with him to work upon. It is to appear in an early issue.)

The problem of compulsory health insurance is here. What we are going to do about it is the question. I have in my hand a copy of a Senate bill that has been introduced in the California legislature within the last few days. It is a compulsory insurance plan that those concerned said would not come; but here it is. The California Medical Association laid down cer-



tain definite stipulations in case such legislation should come. The proposed Senate bill does not embrace these said stipulations. The politician will eventually mould this legislation to suit his every purpose.

The San Diego plan now in force about four years requires a centralized service for handling the work. El Paso has such a set-up, and I predict its ultimate success. Any plan adopted must be all inclusive to care for all who cannot afford regular fees.

The San Diego plan is carried out by an executive secretary and her staff. The files are always open for inspection. Our records show that only 0.8 per cent defaulted in payment. When patient know the cost, the records show that they pay. Our plan is criticized by some who say the system is bad because it involves too much charity for the doctor. If the doctors are satisfied why should others object. The patients are well treated and satisfied. They are not considered as charity patients nor treated as such; they are not humiliated.

The San Diego plan does not tend to reduce fee schedules; on the other hand it helps to maintain regular fees. The central office makes this possible. Santa Barbara, Omaha, and Detroit are some of the towns using this plan. Essentially the plan is as follows: A bureau is set up in the local medical society to arrange for fees and payment of fees for all who cannot pay regular charges.

A physician's agreement to cooperate under the plan does not permanently bind him. About 80 per cent of our physicians cooperate in the execution of the plan.

## NEW MEXICO STATE MEDICAL SOCIETY PROGRAM

### Fifty-Third Annual Meeting

Albuquerque, New Mexico

May 23, 24, 25, 1935

#### OFFICERS

President	-	-	C. F. Milligan, Clayton, N. M. (Deceased)
President-Elect	-	-	C. F. Gerber, Las Cruces, N. M.
Vice-President	-	-	Geo. W. Jones, Clovis, N. M.
Sec.-Treas.	-	-	L. B. Cohenhour, Albuquerque, N. M.

#### COUNCILORS

C. B. Elliott	-	-	-	-	Raton, N. M.
R. O. Brown	-	-	-	-	Santa Fe, N. M.
R. L. Bradley	-	-	-	-	Roswell, N. M.
H. A. Miller	-	-	-	-	Clovis, N. M.
Carl Mulky	-	-	-	-	Albuquerque, N. M.
C. A. Miller	-	-	-	-	Las Cruces, N. M.

#### DELEGATE TO A. M. A.

H. A. Miller	-	-	-	-	Clovis, N. M.
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#### COMMITTEES (All of Albuquerque)

##### PROGRAM

W. R. Lovelace, Chairman.	
L. M. Miles	C. C. Keeler
R. M. Mendelson	Grayson Tarkington
L. C. Cook	W. H. Thearle
J. E. J. Harris	J. L. Garduno

#### ENTERTAINMENT

J. D. Lamon, Jr., General Chairman

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a booklet published by the A. M. A. will be sent to physicians free on request.

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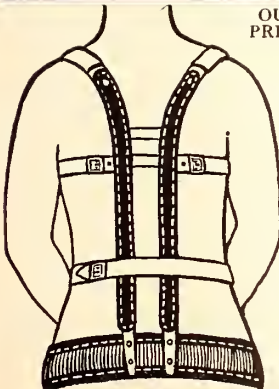
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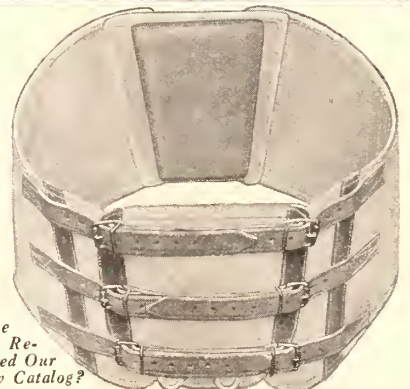
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## ANNOUNCEMENTS

Registration headquarters will be at the Franciscan Hotel. Every member, visitor and guest is requested to register promptly on arrival. Registration fee is \$5.00. This entitles one to all entertainments, smoker, luncheons, and the banquet.

All of the scientific meetings will be in the Franciscan Hotel. All scientific session will be held in the Indian Room. The scientific exhibits will be in the private dining room. Commercial exhibits in the lobby.

General discussions are limited to three minutes. No one shall speak more than once on the same subject.

Papers read before the scientific sessions shall become the property of the society and should be deposited with the secretary for publication in the

official organ of the society, Southwestern Medicine.

Bring your wives. The Ladies Auxiliary of the Bernalillo County Medical Society are prepared to entertain the wives of visiting physicians. Headquarters will be at the Franciscan Hotel. Every visiting lady is requested to register promptly on arrival.

Smoker will be held at the Elks Club on Thursday evening at 8 o'clock.

Dinner dance will be at the Franciscan Hotel Friday evening at 8 o'clock.

Noon-day luncheons at the Franciscan Hotel Thursday, Friday, and Saturday. There will be round table discussions led by our distinguished guests.

## PROGRAM

THURSDAY, MAY 23, 1935

Opening Session—9:30 A. M.

Vice-President Dr. Geo. W. Jones, Clovis, N. M. presiding.

Invocation - Rev. G. M. Weber, Albuquerque, N. M.  
Address of Welcome—

Hon. Chas. Lembke, Mayor of Albuquerque, N. M.  
Dr. H. E. Rodgers, President, Bernalillo County Medical Society.

Response - Dr. C. H. Gellenthien, Valmora, N. M.  
Installation of President-Elect—Dr. C. F. Gerber Las Cruces, N. M.

Presidential Address - - - Dr. C. F. Gerber  
Dr. C. W. Anderson, Denver, Colorado:

"Ovulation, Sterile Periods and Fertile Periods."

Dr. J. Rosslyn Earp, Santa Fe, N. M.:

"Malaria Control."

(Both of these papers are illustrated with moving pictures.)

Thursday Noon Luncheon

Round table discussion led by guest speakers.



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## AFTERNOON SESSION

2:00 P. M.

- Dr. Martin Green, San Francisco California:  
 "Some Eye Problems of the General Practitioner"  
 Dr. S. L. Haas, San Francisco, California:  
 "Management Poliomyelitis Deformities."  
 Dr. R. G. Packard, Denver, Colorado:  
 "Observation and Treatment of Fractures of the  
 Shaft of the Femur."  
 Dr. S. R. King, Fort Stanton, New Mexico:  
 "Avulsion of the Tibial Tubercle."  
 Smoker—8:00 P. M.—at the Elks Club.

FRIDAY—9:00 A. M.

- Orthopedic Clinic by Dr. S. L. Haas.  
 Dr. H. C. Naffziger, San Francisco, California:  
 "Surgery of Hypertensive States."  
 Dr. H. C. Bumpus, Jr., Pasadena, California.  
 "Present Methods for Relieving Prostatic Obstruc-  
 tions."  
 "Radiation Therapy in Various Surface Lesions."  
 Dr. G. T. Vinyard, Amarillo, Texas:  
 "Treatment of Inflammatory Conditions of the  
 Female Pelvis."

Friday noon luncheon

Round table discussion led by guest speakers.

## AFTERNOON SESSION

2:00 P. M.

- Dr. W. P. Holbrook, Tucson, Arizona:  
 "Present Day Conception of Arthritis."  
 Dr. R. W. Lamson, Los Angeles, California:  
 "Hay Fever."  
 Dr. Orville Harry Brown, Phoenix, Arizona (Frater-  
 nal Delegate):  
 "Allergy Problems."  
 Dr. H. H. Latson, Amarillo, Texas:  
 "Endocrinology."

Dinner Dance—7:00 P. M.—Franciscan Hotel.

SATURDAY—9:00 A. M.

Asthma Clinic by Dr. R. W. Lamson.

Dr. Felix P. Miller, El Paso, Texas (Fraternal Dele-  
gate):"Apical Thoracoplasty in Pulmonary Tuberculo-  
sis."

Dr. A. J. Scott, Los Angeles, California:

"Acute Contagious Diseases."

Dr. J. A. Barger, Mayo Clinic, Rochester, Minne-  
sota:"The Management of Peritonitis based on some  
newer concepts of its nature."

Saturday noon luncheon.

Round table discussion led by guest speakers.

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## BUSINESS MEETINGS

Thursday, May 23, 1935.

Meeting of the Council—8:00 A. M.

Meeting of the House of Delegates—8:30 A. M.

Friday, May 24, 1935.

Meeting of the House of Delegates—1:00 P. M.

Election of Officers.

Saturday P. M., May 25, 1935.

General Meeting for the good of the profession and  
report of committees.

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## EL PASO COUNTY MEDICAL SOCIETY

(Reported by Dr. L. O. Dutton, Sec.)

April 1, 1935—Meeting was called to order 8:00 P. M. by Dr. B. F. Stevens, at Hotel Dieu Nurses' Home. Minutes of the previous meeting were read and approved.

The following amendment to the By-Laws was given final reading:

"Chapter IV, Section 1, Paragraph 11: The standing committees shall consist of the executive committee, nominating committee, committee on program and scientific work, committee on public health and legislation, milk committee, board of censors and board of control of the central medical service. To Chapter IV, Section VIII, is added: The board of control of the El Paso central medical service shall consist of three members. The first board shall be nominated by the economics committee. Members shall be elected for a period of three years service, one member being elected each year. The first board shall be elected by places: Place one being executive officer and service shall be for one year; place two service for two years; place three service for three years. The executive officers shall in succeeding years be the member whose last year of service it shall be. The amendment was passed unanimously.

Dr. R. B. Homan read the recommendation of the economics committee for the board of control of the El Paso county central medical service, which is attached hereto, naming Dr. Ralph Homan for place one (chairman); Dr. Charles Rennick, place two; Dr. Orville Egbert, place three. These were then elected by ballot, Drs. Murphy and Newman serving as tellers.

Dr. R. B. Homan read a redrafted plan for the central medical service. On motion of Dr. Felix Miller, the plan was adopted as a whole, Dr. Felix Miller voting No.

On motion of Dr. Miller the society voted to invite Dr. Holder of San Diego, California, to visit El Paso April 22 and explain the details of the San Diego plan at the expense of the El Paso County Medical Society. Adjourned 9:15 P. M.

Meeting was called to order by Dr. B. F. Stevens, 8:00 P. M., April 8, 1935, at Hotel Dieu Nurses' Home. Minutes of the previous meeting were read and approved.

Dr. F. P. Schuster read a paper, "Common Diseases of Eye in Schools and Their Prevention." Discussion by Drs. Clay Gwinn and Paul Gallagher.

Dr. W. R. Curtis read paper "Theelin in Gonococcus Vaginitis in Childhood." Reported cases demonstrating good results. Discussion by Drs. Jamieson and Thompson.

Dr. J. W. Cathcart made the following motion: Believing that the best interest of all concerned would be furthered by physicians generally closing their offices at noon Saturday during June, July and August, the secretary is hereby instructed to have printed cards for distribution to the members, which shall read: We close at noon Saturday. Member El Paso County Medical Society. It is understood that no member of this society is in any way obligated to close at noon Saturday, nor shall his failure to do so in any way reflect upon him. Carried.

Applications for membership for Drs. Laramore, Gregory and Hatfield were referred to the Board of Censors.

Letter from Dr. B. W. Owen, President of the American Medical Association of Vienna, regarding a lecture to the El Paso County Medical Society was read. A motion was made and carried that Dr. Owen be invited to lecture here May 18, 1935.

Dr. Chas. Rennick's resignation from the economics committee was accepted.



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## THE FIGHTING ARIZONA DOCTOR

(Continued from page 169)

ident of Pan-American Medical Congress, representing the Medical Department of the United States Army in 1893; Delegate to represent the Medical Department of the U. S. Army at the 11th International Medical Congress in Rome, Italy, 1894; Companion of the Military Order of the Loyal Legion; Member of the Society of the Army of the Cumberland; Member of the Society of the Army of the Tennessee; Companion of Detroit Commandary of Knights-Templar 1869-1892. The Government has named a public building in honor of the General at the Carlisle Indian School.

To return to the Apache Pass fight: A controversy has been started and, as I have said, many criticisms have been heaped on Bascom. Lieutenant Bascom and General Irwin were publicly commended for meritorious service after this battle. Bascom was promoted to Captain. He fell at the Battle of Val Verde February 21, 1862, and Fort Bascom was named for this gallant young officer. General Irwin in his report took full responsibility for the execution of the Apache warriors, man for man, for their dastardly deeds. General Irwin was awarded the medal of honor for distinguished gallantry in action. His career in the Civil War brought more distinction. He died in December, 1917. At his last inspection at Fort Sill he asked that his orderly be an Indian. He was National Commander of the order of Indian Wars of the United States.

He was always a friend of the tribes who entered into treaties of amity with the United States. When the last Indian regiments were being disbanded he used every argument and influence to prevent what he considered an injustice to the Indians who had proven themselves to be loyal and fine soldiers. The sentimentalists about Indians are like the pacifists, but crime must be punished and the people taught to obey the law. We have a beautiful country, a peaceful and delightful place to live in, and these pioneers have made it so.

It is my desire and hope that the medical profession of Arizona will assist in commemorating by a suitable monument the Battle of Apache Pass that stopped the cruelty and slaughter of emigrants, and whose chief actor was one of our own profession.

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Laryngoscope, 1935, XLV, 149-154\*

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Proc. Soc. Exp. Biol. and Med., 1934, 32, 241-245\*



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Vol. XIX.

JUNE, 1935

No. 6

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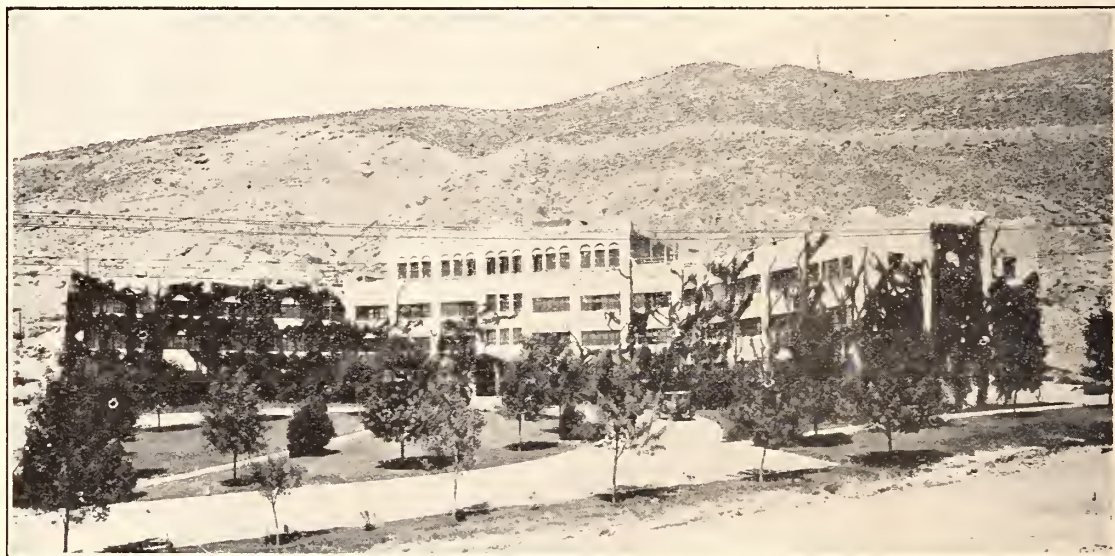
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VOL. XIX.

JUNE, 1935

No. 6

ANNUAL SUBSCRIPTION \$2

SINGLE COPIES 25 CENTS

Entered at the Postoffice at Phoenix, Arizona, as second class matter.

"Acceptance for mailing at special rate of postage provided for in section 1103, Act of October 3, 1917, authorized March 1, 1921."

## BRONCHOMONILIASIS

### A Preliminary Report.

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ZEBUD M. FLINN, M. D.  
Prescott, Arizona.

In two unusually interesting cases of non-tuberculous disease of the lungs, we were fortunate enough to isolate bronchomoniliasis and to prove its pathogenicity by injection into the lungs of laboratory animals. In one case the diagnosis was confirmed by therapeutic test; in the other the diagnosis was proven by post-mortem findings and recovery of the organism from autopsy specimens.

Morphologically the infecting organism was a yeast-like fungus belonging to the family Oosporaceae Saccardo. Biochemical studies enabled us to classify it definitely in the Genus *Monilia* (or more accurately *Monilia Persoon*) and the Species *Monilia Pinoyi*.

Case (1), male, 47, an Illinois physician, in August 1931 developed pain over the anterior left chest while golfing. He was studied and

given a diagnosis of probable malignancy in the right lung. He continued to work until the Spring of 1932 when he visited a number of European physicians without obtaining a definite diagnosis. He returned to hard work during the Fall of 1932; soon he developed fever and pleurisy. Fluid was twice removed from the right pleural space. A definite diagnosis of advanced neoplasm of the lung was made. After removal of the fluid the patient began to improve; by February, 1933, he had gained more than 20 pounds in weight. In March he motored to Phoenix, Arizona. Soon after arriving there he became acutely ill with high temperature. He was reported to have had many rales over right base and a friction rub in the anterior left chest. Shortly, he developed an effusion on the left side which was aspirated twice and air substituted. He expectorated just once and the laboratory reported the sputum positive for tubercle bacilli. (In the light of subsequent events this must have been a technical error.) On the basis of this report a diagnosis of pulmonary tuberculosis was made.

We first saw him June 18, 1933, at which time he was weak, emaciated and complaining of dyspnea, in several severe daily paroxysms.



Fig. (1), Case (1). (August 17, 1931). Stringy, woolly fairly dense shadows over right base with similar shadows over the left base.



Fig. (2), Case (1). (Dec. 3, 1932). Homogeneous opacity from apex to base. Left lung shows slight amount of clearing.

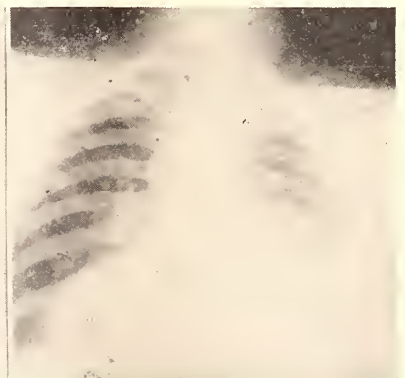


Fig. (3), Case (1). (Jan. 30, 1933). Density of right lung has cleared except over base.

He had very little cough and raised occasional sputum. He had no pain and no fever. There were many coarse rales over the right lower lobe, with marked dullness over the left lower lobe. The heart was displaced to the right.

He soon developed severe dyspnea which removing fluid from the left pleural space relieved. The sputum was negative for tubercle bacilli, but contained monilia which subsequently proved pathogenic for laboratory animals. The fluid from the left chest also showed monilia which likewise proved pathogenic to animals. We then made a tentative diagnosis of bronchomoniliasis, although the complete absence of fever made us skeptical of the existence of any form of infection.

Potassium iodide was given with no favorable effect. The patient grew steadily worse and died on August 24, 1933. A few days before death he developed a violent noisy delirium which required large doses of narcotics to control. Autopsy was performed a few hours after death. The report is given below.

Case (2), male, 58, a lawyer who had lived in Arizona more than 30 years, in March, 1933 developed influenza-like symptoms. After returning to work, he developed pain, in the ninth right intercostal space near the spinal column, of such intensity as to require morphine. His temperature rose to 102 degrees. There were neither signs nor symptoms of lung involvement. X-ray films revealed normal lungs except for possible old pleural thickening. A swelling developed over the area of the pain, and a week later a large amount of thick pus was removed from the chest wall. There was no communication with the pleural space.

Before the abscess was opened, however, there was marked bronchial breathing over the entire right lung posteriorly. After the abscess was drained, the fever abated and the constitutional symptoms improved. He began, however, to cough and expectorate; x-ray films showed a homogeneous density occupying the greater part of the right lung field.

When seen by us on July 18, 1933, his general condition was much improved; but he had a paroxysmal cough and was expectorating large quantities of sputum which, he stated, had a sickening sweet taste. He was still running slight afternoon temperature. His attending physician sent us full reports and all x-ray films. Examination of these films showed a series of fine infiltrative strands at the right base which resembled those in the films of case (1). On the basis of this similarity, Mr. Theo W. Keiper of our laboratory suggested the possibility of a similar infection in this case. The sputum showed monilia which proved pathogenic to laboratory animals.

We prescribed potassium iodide. In a week, the cough and expectoration were much improved and at the end of three weeks both were practically gone. His general condition improved rapidly. X-ray films taken a short time later showed an extraordinary clearing of the right base, only a few infiltrative strands remaining. Subsequent films showed a complete clearing of the entire right lung.

The first case of pulmonary Moniliasis reported in the United States was in 1915, and in the succeeding fifteen years only 11 other reports appear in American medical literature. We were much surprised as we had in our case



Fig. (4), Case (1). (April 12, 1933). Clearing at the right base. The left lung has pneumothorax with fluid level.

Fig. (5), Case (1). (July 14, 1933). Clearing of right lung with increase in the amount of fluid in the left pleural space.

Fig. (6), Case (2). (April 7, 1933). Suggestive "stringy woolly" shadows throughout the lower right lung field.



records seven cases of uncomplicated bronchomoniliasis, none of which has been reported. The first was in January, 1924, from West Virginia with a diagnosis of pulmonary tuberculosis. The patient was very ill with cough, bloody expectoration, fever and emaciation. Potassium iodide had no apparent effect and the patient died a year later. Of the six other cases all had symptoms and signs suggesting active pulmonary tuberculosis. Of four early cases three

in that its study takes one from bacteriology to mycology.

The vast majority of disease germs belong to closely related groups of the lowest plants and animals, and are roughly classified into four main groups: Bacteria—cocci, bacilli, spirilla; molds—ringworm, favus, etc.; yeasts—oidia, monilia, torula, etc.; and protozoa—amoeba, spirochetes, trypanosomes, etc.

The classification of microorganisms is still in its transitional stage due to the difficulty in studying individual morphological characteristics and to the

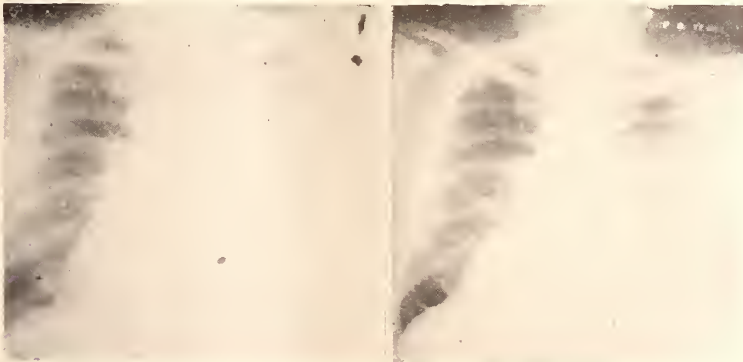


Fig. (7), Case (2). (July 1, 1933). Kidney shaped homogeneous shadows covering entire left lung field.

Fig. (8), Case (2). (August 31, 1933). Following the use of potassium iodide. Clearing of the right lung with persistence of the "stringy woolly" shadows at the right base.

Fig. 7

Fig. 8

cleared up promptly under potassium iodide; the fourth passed from under our observation soon after the diagnosis was made and before treatment was instituted. Of two advanced cases, one made a spectacular recovery under potassium iodide; the other improved somewhat under potassium iodide and passed from observation.

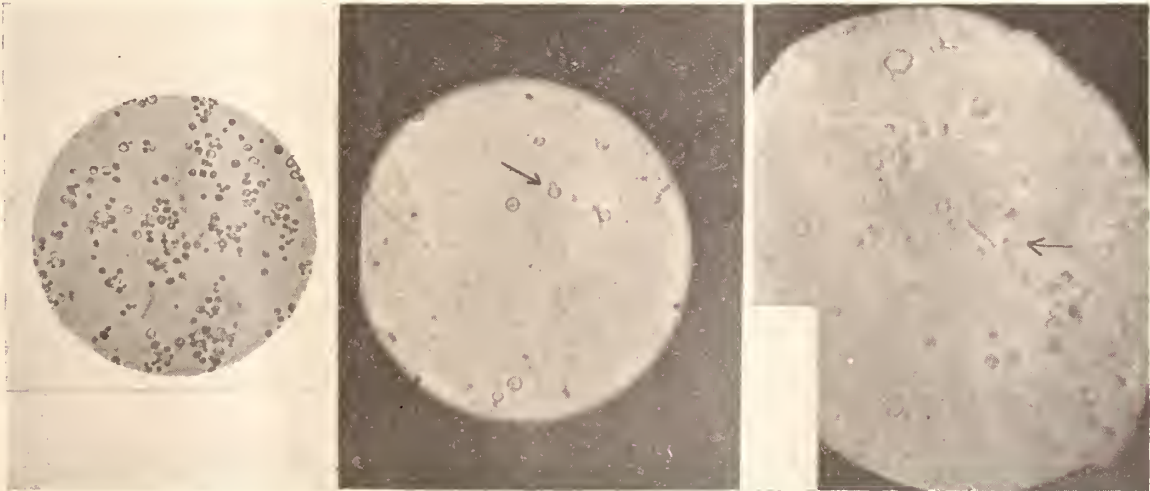
**Laboratory Studies:** From the laboratory standpoint the disease moniliasis is of unusual interest

fact that almost daily new species, groups, or genii of organisms are described. Although bacteria have been fairly well classified by a national committee, the yeasts and yeast-like organisms are in a state of confusion—so much so that the same organism may be classified in one genus by one authority, and in an entirely different genus by another. For instance, the organism of thrush, now generally considered as a monilia, has been placed in half a dozen or more genera. One fungus may form more than one type of conidia, or may produce its conidia under varying conditions of environment and

Low

High

High



24 Hour

24 Hour

48 Hour

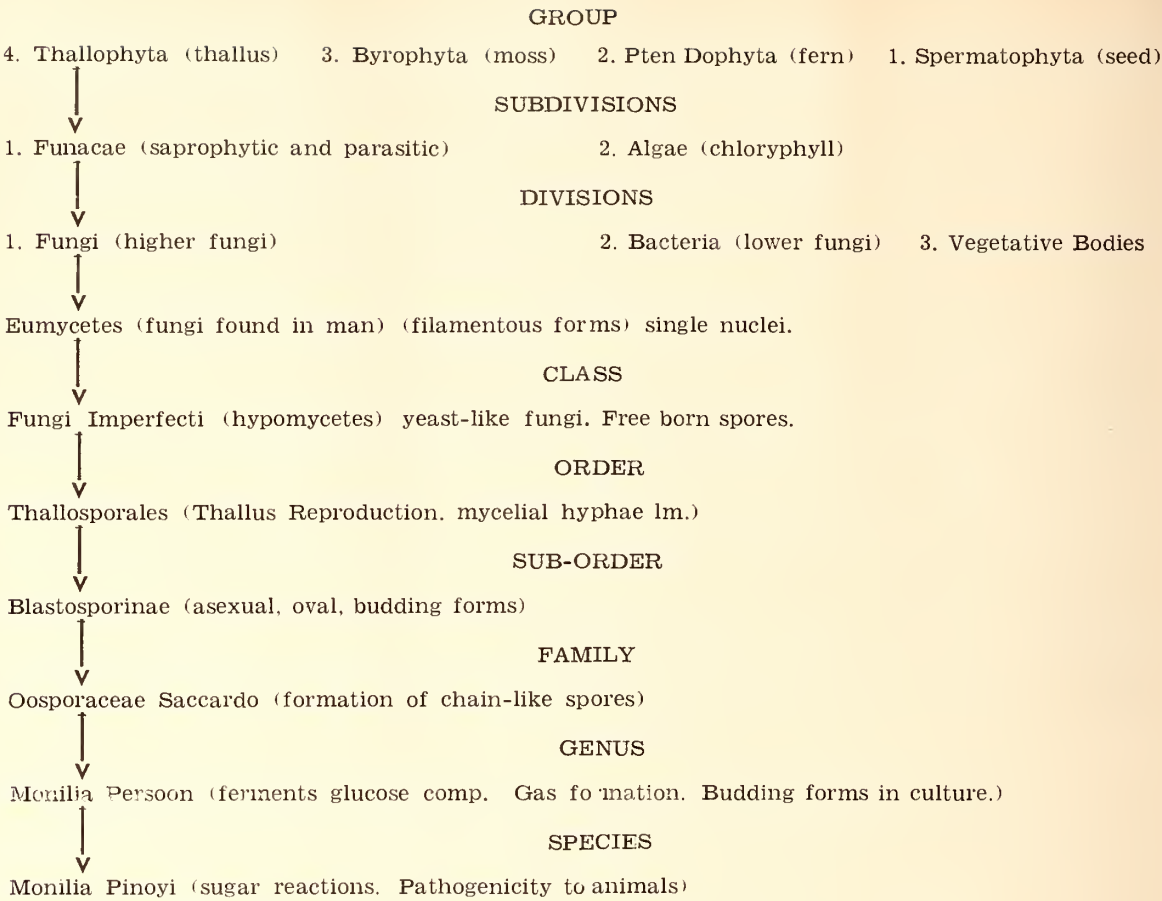


CHART 1.

nutrition. Again, to the plant pathologist the name monilia at once suggests the non-sexual multiplication of the mold-like parasite of plums and other fruits, while to the medical mycologist the term means an essentially yeast-like organism occurring on mucous membranes or skin lesions, which form mycelium in semi-anarobic cultures. Unfortunate-

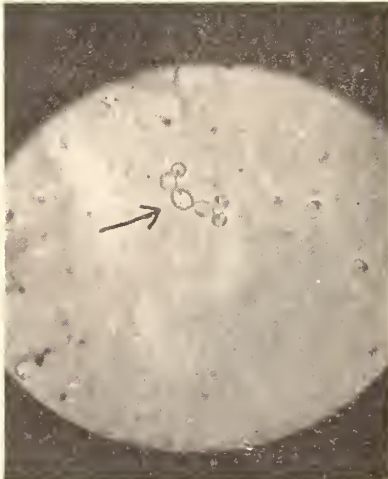
ly the name monilia seems to be firmly established with both groups of workers. It would be highly desirable if another name could come into general use for the yeast-like pathogenic fungi of thrush and related diseases; but the classification is too confusing now to even consider adding to it.

The classification of the fungi imperfecti, of

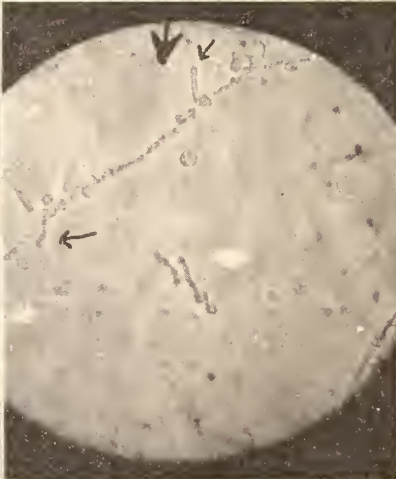
High

High

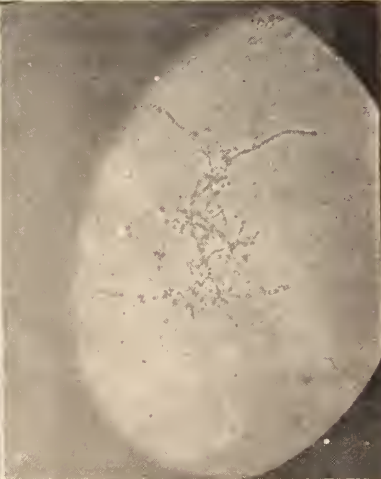
Low



Chain Formation



2 Weeks



7 Days



which monilia is a genus, followed by most mycologists in this country is based upon the system proposed by Saccardo. Another quite different, classification has been introduced by Vuillemin, which is generally used by French mycologists and, since so large a portion of the literature on medical mycology has come from France, this system cannot be ignored. Neither can the plan adopted by Castellani be overlooked after his great experience both in this country and in the tropics.

In a chart we have outlined as simple and as workable a classification as we could devise from a combination of the three systems already mentioned. Note that we start with thallophyta, one of the four great groups of the vegetable kingdom, to which fungi belong. Thallophyta are generally fila-

mentous simple cellular structures differing from other plants in that they do not develop into a complex form, with roots, stem and leaves.

Thallophyta are separated into two large subdivisions: Algae (chlorophyl), and fungacae (sensu lato); fungacae are further divided into: bacteria or lower fungi, mycetes (sensu stricto); and vegetative bodies (myxomycetes).

The fungi found in man, or eumycetes are subdivided into four classes of which fungi imperfecti is the first, recognized by the mode of reproduction, i. e. by freeborn spores, (or conidia) without case or receptacle.

Class 1.—The fungi imperfecti is divided into several orders, of which Order (2) is the thallosporales, recognizable by their mycelial hyphae

Organism No. ....	1	2	3	4	5	6	7
Source .....	sputum case No. 1	brain case No. 1	rabbit organism No. 1	sputum case No. 2	left lung case No. 1	right lung case No. 1	rabbit organism No. 4
Morphology .....	yeast- like mycelium	yeast- like mycelium	yeast- like mycelium	yeast- like mycelium	yeast- like mycelium	yeast- like mycelium	yeast- like mycelium
Lead Acetate .....	white pasty	white pasty	white pasty	white pasty	white pasty	white pasty	white pasty
Sabouraud's .....	white pasty	white pasty	white pasty	white pasty	white pasty	white pasty	white pasty
Nutrient Agar .....	white pasty	white pasty	white pasty	white pasty	white pasty	white pasty	white pasty
Plain Broth .....	sediment	sediment	sediment	sediment	sediment	sediment	sediment
Odor of Cultures .....	yeasty	yeasty	yeasty	yeasty	yeasty	yeasty	yeasty
Pathogenicity .....	killed rabbit in 21 days		organism No. 1	killed rabbit in 7 days			organism No. 4
Character of Growth.	raised slowly	raised slowly	raised slowly	raised slowly	raised slowly	raised slowly	raised slowly
Motility .....	O	O	O	O	O	O	O
Gram Reaction .....	+	+	+	+	+	+	+
Dextrose .....	+	+	+	+	+	+	+
Levulose .....	+	+	+	+	+	+	+
Maltose .....	+	+	+	+	+	+	+
d-Galactose .....	O	O	O	O	O	O	O
Saccharose .....	O	O	O	O	O	O	O
Mannite .....	O	O	O	O	O	O	O
Lactose .....	O	O	O	O	O	O	O
Dextrin .....	O	O	O	O	O	O	O
Rhamnose .....	O	O	O	O	O	O	O
I-Arabinose .....	O	O	O	O	O	O	O
Adonite .....	O	O	O	O	O	O	O
Inulin .....	O	O	O	O	O	O	O
Sorbite .....	O	O	O	O	O	O	O
Starch .....	O	O	O	O	O	O	O
Glycerine .....	O	O	O	O	O	O	O
Gelatine .....	O	O	O	O	O	O	O
Serum .....	O	O	O	O	O	O	O
Litmus Milk .....	O	O	O	O	O	O	O

CHART 2

of more than one micron in diameter, and by their reproduction by thallaspores. Now we come to the suborder blastosporineae; it reproduces by blastospores (round conidia or buds); it is next to the family oosporaceae-saccardo because of the mycelial hyphae and the typical chain of spores. The next step is to the GENUS *monilia* persoon which, as a rule, ferments (produces gas) dextrose completely (budding forms in culture), and, finally, to the SPECIES *monilia pinoyi*; it has typical reactions to rare sugars, and is pathogenic to laboratory animals (see Chart 2).

The infection may occur in various ways but in a large proportion of cases it is clear that the parasite has been introduced into the tissues from or on vegetable matter of one sort or another (Henrici). As a rule *monilia* which are parasitic to man are saprophytic to vegetables, grain, and fruit. The primary involvement of the lungs occurred. We believe that this was true in one of our cases.

**Laboratory Diagnosis:** *Monilia* may be found frequently in the normal mouth and throat, so that the mere presence of *monilia* in sputum is not evidence to establish a diagnosis of bronchomoniliasis. Precautions should be taken to prevent contamination of the sputum. The mouth and throat should be cleansed by gargling before collecting sputum.

A positive diagnosis of bronchomoniliasis is justified only by the constant finding of a pathogenic *monilia* in the expectorated sputum. The pathogenicity of the organisms and their causative relationship to the disease in question can be proven only when their intrapulmonary inoculation in rabbits results in the production of small pulmonary nodules. These nodules have a microscopic picture of other species of granulomata consisting of leucocytes, epithelioid and giant cells, with or without central necrosis. The periphery is usually composed of fibroblastic elements. In addition to these tubercles there may be present a generalized hyperemia throughout the affected pulmonary tissue, associated with both a parenchymatous and interstitial edema of the alveolar epithelium and a narrowing of the alveolar tubules. *Monilia* must be recovered from the lesions. (Jacobson.)

The blood reveals nothing characteristic. In advanced cases there is secondary anemia. Eosinophilia as high as 13-14 per cent have been irregularly found. Allergic responses have been tried (intracutaneous) but have not been satisfactory. Agglutination tests have not been carried out because the fungi show spontaneous agglutination. Complement fixation reactions were unsuccessful, in the few cases investigated. We are working on this problem, and have hopes of creating a valuable diagnostic procedure.

In general infections, *monilia* may be found in urine and feces. In our case with effusion, the organisms were found in the pleural exudate. Finally, it must be remembered from both the laboratory and clinical angles that it is probable that *monilia* become pathogens in man only when the soil has been rendered susceptible to the invading organisms by a break in the immunity chain.

**Autopsy Findings Case (1):** Head—there was increased intracranial pressure with escape of fluid when the skull cap was removed. The longitudinal sinus and the meningeal vessels were engorged with blood. The surface of the brain was markedly congested. Scattered over the surface of the brain were many small white conical masses measuring about 0.5 cm. in diameter and resembling somewhat the appearance of the yeast colonies on culture media. On section of the brain all vessels were congested and there was an increase in fluid in the lateral sinuses. The choroid plexus was matted together and granular. The right lung was adherent over its entire surface. The left pleural space contained one thousand cubic centimeters of fluid. On section the upper lobes of both lungs showed small areas of consolidation. The lower lobes were grossly negative. The bronchial glands were not enlarged. The heart was negative. The liver and spleen had evidence of passive hyperemia. The mesenteric glands were negative.

Sections from the brain and lungs showed pseudotubercles and numerous giant cells. No acid-fast organism was seen in any section.

Positive cultures of *monilia pinoyi* were obtained from the brain, from the pleural fluid and from the apex and base of each lung. Injection of these cultures into the pulmonary tissue of rabbits produced typical nodules from which *monilia pinoyi* was recovered.

## PHYSIOLOGIC APPROACH TO TREATMENT OF HEART FAILURE

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(Read before the Arizona State Medical Association, Phoenix, Arizona, April 25, 26, and 27, 1935.)

The intelligent treatment of heart failure fundamentally rests on the establishment of a **correct diagnosis** of the underlying disease causing such failure. Unfortunately, however, the tendency still exists to practice medicine by rote, to remember the symptoms and signs of disease and to impress these facts by repetition as they occur with experience. This makeshift knowledge virtually curbs the individual to the limited occurrence of disease in its classic form; beyond this, his diagnostic accuracy is cast with fate.

In the diagnosis of heart diseases and in their differentiation, the physician's accuracy usually parallels the comprehensiveness of his **knowledge of fundamentals** and his ability to



use this knowledge intelligently. When one recalls the architectural complexities of the heart and fully appreciates its dynamic responsibilities in the general scheme of the body, some of the problems in the diagnosis of its diseases become apparent. The issue becomes further complicated by the fact that diseases affecting the heart rarely limit their devastations to one structure or component part, so that the resulting pathologic lesions are usually multiple. Furthermore, the heart frequently is diseased from more or less remote conditions in the body.

Accuracy of diagnosis in heart disease cannot therefore be attained by the physician who is equipped only with a good memory and a didactic medical experience. Modern medicine demands not only accuracy of diagnosis, but also the **practical application of physiology** in the diagnosis of disease and in its treatment. The scientific treatment of heart disease is possible only when the disturbances in physiology are recognized and properly interpreted.

Many physiologic reactions are in the normally functioning cardiovascular system permitting the circulation to adapt itself readily to the demands imposed by varying circumstances: they are variable, at times, and under certain demands exerting their influence, and again remaining dormant. Among these **physiologic factors** are cardiac rate, amplitude of contraction, volume output, myocardial tonicity, residual cardiac blood, arterial and venous blood pressure, varying resistance of the peripheral circulation (arteriolar capillary bed), status of such other circulatory components as the splanchnic and pulmonary circulation, blood viscosity, diaphragmatic function, and alterations in basal and general metabolism.

The heart may be unable to maintain normal circulation under the strain of disease, and stasis may occur in various parts of the body. This is evidenced by, dyspnea—frequently orthopnea—edema—even anasarca—varying degrees of cyanosis, and congestion of liver and other viscera—the **syndrome of congestive heart failure**. This syndrome may occur in any form of cardiopathy.

In considering treatment for congestive heart failure, an attempt will be made to **link the therapeutic measures employed with the major facts underlying the forms and stages of circulatory failure**; in order that the ensuing consid-

eration of certain disturbances may be clarified, I shall consider the circulation according to its individual components. For reasons of simplification, let us consider the heart as a bilocular organ consisting of right and left chambers with the pulmonary vessels between them. The peripheral circulatory channels, the great arteriolar-capillary bed of the body, comprise the systemic circulation, communicating with the heart by the various arterial and venous trunks. With this relatively simple scheme in mind it becomes possible to visualize the disturbances in circulation consequent to heart failure.

**The production of heart failure:** Diseases of the cardiovascular system influence the heart in various ways; an understanding of these differences is necessary to the interpretation of the effect of the various lesions as expressed in terms of **cardiac strain**. For instance, hypertension, coronary disease, aortic stenosis, aortic insufficiency, and adherent pericarditis, primarily and predominantly, exert strain on the left ventricle. In contrast, sclerosis of the pulmonary artery, pure mitral stenosis, and certain pulmonary diseases, notably emphysema, extensive pulmonary fibrosis, and pulmonic stenosis, primarily and predominantly, overburden the right ventricle. Clear-cut instances of failure of either ventricle are not commonly observed, as cardiac lesions are likely to be multiple and failure of one side of the heart blends into failure of the other.

When the **left ventricle begins to fail**, it falls behind in expelling the blood sent through the lungs and left auricle by the normal right ventricle. This influences the pulmonary circulation; pressure within it is raised, stasis occurs, the lungs become congested, and, if this train of events occurs rapidly, edema of the lungs may appear; the patient becomes dyspneic and cyanotic, varying with the impairment of ventilation. When anoxemia has reached a certain degree, cardiac function becomes more impaired because heart muscle is intolerant to oxygen-want. The effect of anoxemia is not limited to the heart; oxygen is needed in all living tissues, and while a range of variability exists according to different structures, encroachment on the physiologic limits results in disturbances in function. A greater requirement for oxygen occurs when events accentuate the physiologic reactions. In the heart, an added

load creates an increased demand for oxygen proportionate to the added burden.

The maintenance of **cardiac tonicity**, vital in resisting heart failure, is greatly influenced by proper ventilation, and under conditions of oxygen-want, loss of tonicity and progressive heart failure may rapidly ensue. When the heart is the seat of structural disease, variable degrees of myocardial anoxemia are readily produced. In most cardiac lesions, such as stenosis and insufficiency, or in disturbances of rhythm, such as may occur with auricular fibrillation, a tendency exists to reduce the minute volume of the circulating blood. With reduction of minute volume, no immediate deficiency in pulmonary ventilation exists, for sufficient oxygen is present in the alveolar air; the saturation of the arterial blood is, therefore, normal. However, with pulmonary stasis and congestion, ventilation in the alveoli is impaired through the accumulation of a transudate and anoxemia supervenes. Tonicity is then impaired, the minute volume of the circulation becomes reduced further, with reduction in the total oxygen content of the tissues. This is a vicious cycle which tends to be repeated, which progressively interferes with circulatory function, and which terminates in death unless interrupted.

In order to allow for normal coordination of the circulation, a proper **balance between arterial and venous blood flow** must be maintained. For many years it was believed that cardiac output was the chief factor influencing venous pressure, due to varying exchange of blood between the veins and arteries. However, evidence now exists which seems to indicate that venous pressure is an important factor in the regulation of cardiac activity, thereby reversing the previously accepted belief. Within the limits of the range of physiologic adaptation, increased venous return results in increased cardiac output, whereas diminished venous return, with lowering of venous pressure, likely causes diminished cardiac output. When the venous return is increased, more blood tends to flow into the ventricles, systole is prolonged, and the residual blood at the end of systole may or may not be reduced. The heart is capable, within certain limits, of responding to an increased load by increased work; the limit of response is what is commonly known as the cardiac reserve. Thus, under

average conditions, a regulating mechanism exists that tends to stabilize venous pressure.

As failure of the left ventricle progresses, the **right ventricle** is forced to work against increasing resistance, its function becomes **impaired**, and the tricuspid valve ultimately becomes incompetent, with the result that the systemic venous circulation becomes engorged, but to some extent relieving the pulmonary circulation. It is at this stage of heart failure that lessening of dyspnea and cyanosis may be witnessed, while the dependent tissues become edematous and fluid accumulates in the abdominal cavity. Arterial pressure frequently becomes lowered.

With continued and progressive cardiac failure, **both ventricles** now **participating**, the pulmonary circulation becomes the seat of progressive stasis as stasis also progresses in the systemic venous circulation. Continuation of these phenomena obviously results in death.

When **failure primarily** affects the **right ventricle**, the train of events is somewhat different. The right ventricle experiences difficulty in expelling its charge of blood, with the result that the tricuspid valve soon becomes incompetent; stasis, and later engorgement of the systemic venous circulation, ensues. Failure of the pulmonary circulation occurs secondarily; that is, the order in which the pulmonary and the venous circulation becomes engorged is the reverse of that occurring with primary left ventricular failure.

There are still many points of conjecture regarding the problem of **cardiac edema**, although the relationship of certain mechanical factors seems explicable.

Landis inserted minute tubes into the capillary loops, and showed, by his studies of **blood pressure in the capillaries**, that distinct differences exist between pressure in the arterial and in the venous portions of the loops. The osmotic pressure of the tissues was found to average 25 mm. of mercury. The average pressure in the arterial end of the capillary loop was found to be 32 mm. of mercury, that in the venous end to be 12 mm., whereas that in the arch of the loop was 20 mm. This status obviously permits the fluid elements of the tissues to enter the venous side of the capillary loop with facility because of the difference between the osmotic pressure in the tissue and that in the venous capillary. However, when



venous pressure becomes increased, which frequently occurs in congestive heart failure, the reversal of conditions of pressure permits the fluid element of the blood to seep into the tissues to remain there as long as the imbalance persists.

One must realize, however, that these various **physiologic disturbances**, as I have related them, may not be clearly observed in clinical cases owing to the fact that, even under conditions of disease, the cardiovascular system possesses remarkable powers of adaptation and enrolls all the available resources of its various components before submitting to defeat. Likewise, the compensatory factors apparently behave variably under seemingly identical conditions.

**The principles of treatment:** With the advent of congestive heart failure, regardless of its cause, **sole attention must not be centered on the heart.** Not infrequently such a zealous yet misguided effort results in failure of the patient to improve and at times is the direct reason for his decline. I do not wish to imply that treatment directed at improving heart function should not be instituted, but this certainly must not be the only therapeutic approach.

During the stage of congestive heart failure one is confronted with the consequences of **faulty circulation**, and direct attack on these consequences is often necessary in order to permit the heart to regain its adequacy. The principal sequelae comprise visceral congestion, edema and anasarca, anoxemia, and increase in venous pressure in the pulmonary or systemic circulations, or in both. The abolition of these conditions greatly relieves the heart and often is the deciding point in a patient's recovery.

Thus the **treatment of congestive heart failure** rests, essentially, on three principles: (1) Measures primarily directed toward the heart, in which the attempt is made to permit it to obtain more rest, and thereby to increase the efficiency of its function; (2) measures instituted principally to relieve the consequences of heart failure, as already mentioned; and (3) institution of an individualized regimen directed toward maintenance of circulatory adequacy.

**Forms of treatment:** The first and outstanding requisite in the treatment of congestive heart failure is **complete rest in bed**, with elevation of the upper part of the body. The pa-

tient should not be permitted to leave the bed under any conditions. Interruption of rest, such as occurs when the patient is permitted to visit the bathroom, is frequently the factor that results in failure of the instituted regimen.

**Digitalis**, the therapeutic agent most commonly used in heart disease, was brought to the attention of the medical world by William Withering over a century and a half ago. Yet despite this long usage, it is probably the most misused drug in present-day therapeutics. Many physicians prescribe digitalis on making the diagnosis of heart disease, regardless of the type of lesion or state of function and frequently on the mere suspicion of the existence of heart disease. Such therapeutic indiscrimination indicates the traditional domination of an unenlightened era and clearly shows a lack of understanding of the actions of the drug.

Many actions have been assigned to **digitalis**, a considerable number of which have not withstood the test of time and experience, a fact unquestionably contributing to the existent confusion regarding its actions and indications. The effect of digitalis on the diseased heart of man is now narrowed down to **three definite actions**, the understanding of which greatly simplifies the practical indications and contraindications for its use: (1) Digitalis depresses the function of the sino-auricular and auriculo-ventricular nodes, resulting in a tendency to slowing of cardiac rate—partly a vagal action; (2) it depresses cardiac conduction throughout the muscle and increases the refractory period of both auricles and ventricles—depression of conduction, particularly through the auriculo-ventricular (His) bundle, explaining the striking result in many cases of auricular fibrillation; and (3) it increases the amplitude of cardiac contraction, and it tends, also, to restore tonus, apparently from direct action on the heart muscle.

The most **striking indication for the administration** of digitalis is congestive heart failure, when **auricular fibrillation** is present, when the ventricular rate is rapid, and when discrepancy exists between the apical and the peripheral arterial pulse. Probably the most dramatic results that follow administration of digitalis are observed under these circumstances. Although digitalis is indicated in other conditions also, its beneficial effects are prone to be less conspicuous. I have in mind, particularly,

the patient with congestive heart failure, but one whose heart beats in regular rhythm and not excessively rapidly. Additional therapeutic measures are usually necessary to restore circulatory competence.

After restoration of cardiac function, digitalis is frequently indicated, administered, preferably, for two or three consecutive days each week. This is particularly true if auricular fibrillation is present. Under any condition administration of digitalis should be discontinued before the development of toxic signs or symptoms. Toxic phenomena, such as nausea and vomiting, are well known and readily recognized, but the symptoms of cerebral intoxication are apparently not so well understood and warrant emphasis. They consist of giddiness, disturbed color vision, delirium, and coma, and they may occur independently of nausea and vomiting. This status is extremely dangerous, not infrequently ending in death.

**Mercurial diuretics**, novasurol (merbaphen) and salyrgan (mersalyl), have been the outstanding contributions of recent years to the treatment of congestive heart failure. Novasurol is a double salt of sodium mercurichlorophenyl-oxyacetate with diethylbarbituric acid. It contains 33.9 per cent of mercury. Salyrgan is prepared by the action of mercury acetate and methyl alcohol on salicylalylamide-o-acetic acid, with subsequent conversion to the sodium salt. It contains, when dried to a constant weight, 39.6 per cent of mercury in non-ionizable form.

The **mercurial diuretics** appear to act by mobilizing sodium chloride and water in the tissues causing them to be excreted in the urine. The **action** presumably is exerted on both the kidneys and other tissues. Diuresis usually begins within a few hours after intravenous administration of one to two cc. and the maximal effect of the single injection is invariably achieved within the first 24 hours. Injections may be given at intervals of three or four days. It is not unusual for the urinary output to range from 3,000 to 8,000 cc. in the first 24 hours succeeding administration of the drug.

Dramatic improvement in the patient's condition frequently occurs soon after release of large quantities of fluid, thus enormously relieving the load on the heart by lowering the peripheral resistance. The general circulation improves, **venous stagnation disappears**, ve-

nous pressure falls if the disease has caused it to be increased, and oxygenation of the tissues becomes more adequate.

The **mercurial diuretics** are **contraindicated** in acute glomerulonephritis; caution must be used not to confuse the evidences of heart failure with those of nephritis. Enteritis is likewise a contraindication to the use of these mercurial substances. Extreme caution must be exercised in administering these drugs; the introduction of even minute amounts into the skin results in a slough that requires considerable time to heal.

The **long-continued intravenous injection** of either novasurol or salyrgan leads to local venous thrombosis, and consequently their use is ultimately prevented. Under such conditions they may be injected deeply into the muscles of the buttocks, and experience at The Mayo Clinic has shown that novasurol is more effective than salyrgan when administered intramuscularly.

The **diuretic salts**, ammonium nitrate and ammonium chloride, are valuable adjuncts in the treatment of cardiac edema, as has been demonstrated by Keith and his associates. At times, release of edema fluid by the use of the mercurial diuretics is slow and incomplete, and the supplemental administration of these salts results in satisfactory diuresis. Not infrequently, the use of these salts alone results in mobilization of the fluid. They apparently act directly on the tissues of the body; the ammonium radical forms urea and the acid ion apparently predominates in liberating fluid. An increased urinary output of water, acid, chlorine, ammonia, and total inorganic base occurs. The drug is best given in enteric-coated pellets, and the usual dose is four to six gm. daily. Administration must not be too protracted, owing to the tendency for concentration of urea in the blood of some patients. It is frequently desirable to administer these salts three or four days preceding injection of the mercurial diuretics, and then to discontinue administering them. The presence of marked retention of nitrogen ordinarily contraindicates their use, but if other methods of treatment fail to mobilize retained fluids, their cautious use is warranted. When the stomach will not retain administered substances, as it sometimes will not when visceral congestion is marked or digitalis has been



unwisely used, either salt may be administered in solution by rectum.

The **purine diuretics** likewise have a place in combating cardiac edema. They consist chiefly of theobromin sodiosalicylate, theobromine, theophylline, and caffeine. As a rule their effect is less spectacular than that of the agents already considered. They tend to cause liberation of water, sodium, and chlorides from the tissues and apparently exert their influence on the kidneys and on the other tissues of the body. These drugs are usually administered orally in doses of 0.3 to 0.6 gm., three or more times daily. When results are not evident within a few days, their continued administration is of doubtful value.

The intravenous injection of **hypertonic glucose** solution is frequently a valuable procedure. It is well known that the heart muscle, as a storage depository for glycogen, ranks second only to the liver; its normal content of glycogen, in proportion to the weight of the organ, is greater than that of any other depository of the body. It is a fact that heart muscle glycogen becomes readily mobilized under the influence of anoxemia, so that undoubtedly this becomes an important consideration in heart failure.

**Glycogen** plays an important part in the metabolism of the myocardium, and undoubtedly the part it plays here is similar to that which it plays in voluntary muscle; it is a vital source of energy. Evidence exists that heart failure is attended by a deficiency of glycogen in the heart muscle, for it has been frequently demonstrated that intravenous injection of freshly prepared, sterile hypertonic solution of glucose results in striking improvement in cardiac function. At times this procedure results in diuresis, and it is frequently indicated when evidences of dehydration are present with a tendency for nitrogen retention.

It is important here to emphasize the fact that a patient with **anasarca** may present all evidences of **dehydration**, namely, a dry, red-denied tongue, a dry skin, stupor, elevation of blood urea, and so forth. He is like the mariner at sea,—there is water, water everywhere but not a drop to drink, because the retained fluid is held in the tissues where it is not excreted, not available for use by the body.

Three, to four, hundred cubic centimeters of 15 to 20 per cent solutions of **glucose** are in-

jected extremely slowly, in not less than an hour with a longer time for larger amounts. This may be repeated daily for several days, as the case may require. Dramatic improvement is frequently observed.

**Oxygen therapy** has a definite place in the treatment of heart failure, but I do not advocate it as a routine procedure. The reasons for this lie in the fact that it is ordinarily not necessary, as the majority of patients improve under the other forms of treatment mentioned, and it is an expensive procedure. The oxygen chamber and the portable tent are the only methods of administration that give satisfactory results. The indications are severe dyspnea and cyanosis,—evidences of anoxemia. A concentration of 50 per cent oxygen by volume is usually maintained. Experience has shown that concentrations beyond 60 per cent are not necessary, and if no improvement by these concentrations occurs, this method of treatment should be discontinued.

**Venesection**, one of the oldest therapeutic procedures, occupies an important place in the treatment of congestive heart failure. Present day medicine has almost abandoned this procedure; yet its intelligent application is often a life-saving measure. It is particularly effective when the pulmonary circulation is engorged, for it reduces the volume of venous blood, which in turn diminishes the pressure of the blood in the heart in diastole and, thereby diminishes cardiac dilation—thus making possible more efficient cardiac contraction. This often permits the heart to keep pace or even to overcome load, which frequently is the turning point in the restoration of function. The quantity of blood withdrawn usually ranges from 300 to 600 cc., and the procedure may be repeated from time to time as indicated.

**Other mechanical measures** employed in the treatment of congestive heart failure consist in aspiration from the body cavities of retained fluid, introduction of Southey tubes into edematous extremities, or multiple puncture or cutaneous incision of these edematous parts. Fortunately, however, these procedures are rarely necessary, testifying to the remarkable efficacy of the measures already considered.

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#### DISCUSSION

DR. VICTOR RANDOLPH: I feel I speak for the entire convention when I say that this paper is of great practical value.

DR. F. A. KENNEDY: I should like to ask when digitalis is wrongly used?

DR. WILLUS: This is an involved question based on definite fundamental principles. Digitalis' function is with definite heart failure. Digitalis is wrongly used when there is a mere suspicion of heart failure.

## POLYCYSTIC KIDNEY

(Report of Five Cases)

J. W. PENNINGTON, M. D.

and

DAVID M. DAVIS, M. D.

To illustrate some of the problems connected with polycystic kidney, we are presenting abstracts of five cases.

Polycystic kidneys are striking and spectacular in the autopsy room; in the patient they are rarely diagnosed.

The commonly quoted diagnostic triad is pain, hematuria and bilaterally enlarged kidneys; but a good deal must be added to this. Hematuria may be absent; pain may be absent; and the kidneys may not be palpable. In addition, the patient may be suffering mostly from symptoms due to superimposed complications such as urinary infection with pyelocystitis, pyelonephritis, or even pyonephrosis, urinary calculus, ureteral obstruction with hydronephrosis, or particularly in males lower urinary tract obstruction. The symptoms of the complications are apt to mask those due directly to the kidneys. Complications are more apt to occur in older patients, but are seen in the young, as demonstrated in our case four.

Case (1), female, age 49, married, first seen May 4, 1933: It is interesting that the patient's mother died of "kidney trouble with hemorrhages and dropsy." General health had been good until the present illness. No kidney trouble arose with her one pregnancy. Five years ago pain in the back began, with hematuria,

chills and fever. She was treated medically for two years; she had a nephropexy; polycystic disease was found. The pain was relieved by the operation, and she was well for one year. Chills, fever and hematuria recurred; relief was obtained by kidney lavage, which controlled her symptoms for two years or until about six months ago when she began to have pain in the left kidney. Lavage then failed to relieve the trouble. She had had nausea for one to two weeks, and profuse hematuria for one month.

Examination showed the patient to be well developed and nourished, clear and alert mentally but complaining of extreme nausea. Large, irregular, movable, masses were felt in both kidney regions, that on the left being larger, extending down to the level of the umbilicus. The non-protein nitrogen was 170; medicinal treatment had no effect on the nausea or increasing uremia. The patient died eight days later.

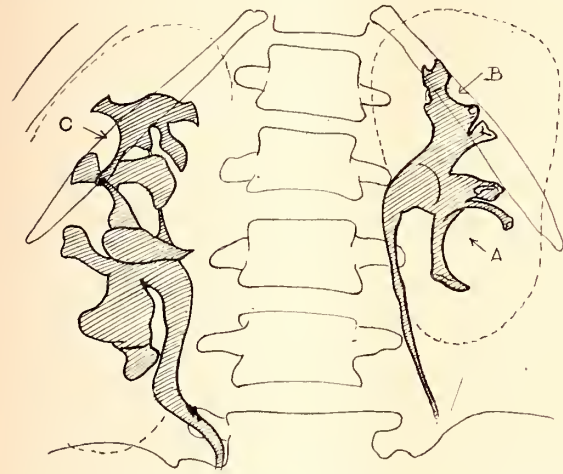
The autopsy findings were of no significance except those of the liver and kidneys. The liver was slightly enlarged, pale and covered with many cysts from one-half mm. to three cm. in diameter. Both kidneys were extremely cystic, equal in size—measuring 17 by six by eight cm. The cysts varied in size up to four cm. in diameter and some of them contained bloody fluid.

Case (2), female, age 55, married, first seen in September, 1933: The complaint was pain in the back. The general health always had been good. The uterus was removed 10 years previously for early carcinoma. There was no kidney trouble prior to the present illness. In 1930 the patient had high blood pressure and was told that she had Bright's disease. In 1931 she had back pain but no bladder symptoms. Four months prior to her visit to the office she had severe pain in the back and marked nausea and vomiting. Examination showed bilateral hydronephrosis with infection. Cystoscopic treatment caused immediate and marked improvement but pain persisted and the patient was treated by lavage of the kidney pelves about once a month.

Examination revealed nothing definite. The patient was seen at intervals of about one month. The ureters were dilated to size 12 French. There was relief from the pain following each dilation. Following the dilation on



February 21 the patient did not experience the usual relief and when seen March 14 she had severe pain in the back accompanied by nausea and vomiting. A mass was then palpable in the right upper quadrant. Ureteral catheterization gave no evidence of hydronephrosis. Shortly after this hematuria appeared and on July 2, 1934, both kidneys were palpable and enlarged.



Case 2. A, B, & C. represent filling defects due to the spherical cysts.

The urine was infected and again ureteral catheterization revealed no hydronephrosis. At this time the patient, who was indigent, consented to enter the county service, and shortly after an intravenous pyelogram was made by Dr. Ketcherside. We had the privilege of examining the films, and Dr. Ketcherside has kindly permitted us to use them. The pelvis in this case were typical, being elongated and irregular, with numerous distortions from pressure of the cysts.

The patient, who had about reached the maximum age for those suffering from this disease, was very ill when last seen by Dr. Ketcherside; two weeks later she died.

The diagnosis was not made in this case until the pyelograms were secured. The interesting feature is the rapid increase in size of the late stage of the illness.

Case (3), male, age 49: The complaint was hematuria. The patient had always enjoyed good health except for slight post-prandial epigastric pain for 15 years. The hematuria had been present continually for 18 months. At first there were no other symptoms, but for two months aching pain in the back and moderate frequency of urination had been present.

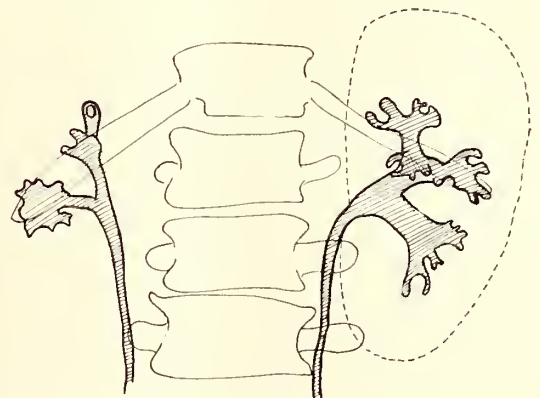
The bleeding was more pronounced in the morning.

Examination showed the patient to be pale and sallow. The right kidney was palpable but not tender; the left was not felt. The urine showed blood but no pus or bacteria. Otherwise the examination was negative. All of the blood came apparently from the left kidney. In 10 minutes there was nine per cent phenolsulphonephthalein excretion from the right kidney and 15.5 per cent from the left. The x-ray showed no stone shadow. In pyelograms the right kidney was large but regular in outline. The pelvis was large, and unusual in appearance. The infundibula were moderately wide, the minor calices somewhat blunted and deeply indented. The major calices were widely separated from one another and the parenchyma was thicker than normal. There were no filling defects. The right pelvis was similar, but somewhat smaller.

The picture is not the usual one for polycystic kidney. The lesion is, however, evidently bilateral, and there is no evidence suggesting neoplasm. The clinical history is characteristic for polycystic kidney. This must be set down as a doubtful case.

The patient was treated by ureteral dilation and silver nitrate instillation on three occasions with much relief; then he disappeared.

Case (4), male, age 15: The complaints were



Case 3.

pain in the left side and bleeding at the end of urination. The family history revealed no urinary disease. The past history was of general good health, except for frequent colds and mastoiditis at age 11.

Present illness: Four days before first seen blood was noticed at the end of urination.

There had been no burning or smarting on voiding but slight terminal tenesmus. The voidings were at hourly intervals during the day with nocturia twice. Pain in the left flank was a marked symptom from the second day of the illness, being knife-like in character. It gradually lessened until it was a heavy dragging sensation at the time the patient was seen.

Upon examination neither kidney could be palpated; there was tenderness over the left. The abdominal examination was negative. The prostate and seminal vesicles were normal. The urine showed many pus cells, many red blood cells, numerous gram negative bacilli, and a few gram negative cocci.

The cystoscopic examination revealed the bladder to be generally inflamed with localized areas of deep injection. Two of these deeply injected areas showed soft, rounded, purple, excrescences which were easily indented and edematous appearing. The trigone was edematous and the vesical orifice showed two pale excrescences. A specimen of one of the excrescences in the base of the bladder was taken for microscopic study. The ureteral orifices were small, but number seven whistle tip catheters passed to both kidneys. Phenolsulphonephthalein appeared from the right side in four minutes and from the left in six minutes. The right kidney showed 25 per cent and the left 20 per cent in 15 minutes. The urine from the right kidney showed an occasional pus cell, numerous staphylococci and rare bacilli; that from the left kidney showed many pus cells and large numbers of bacilli and staphylococci. Bilateral pyelograms showed typical early polycystic kidney disease and marked dilation of the lower left ureter.

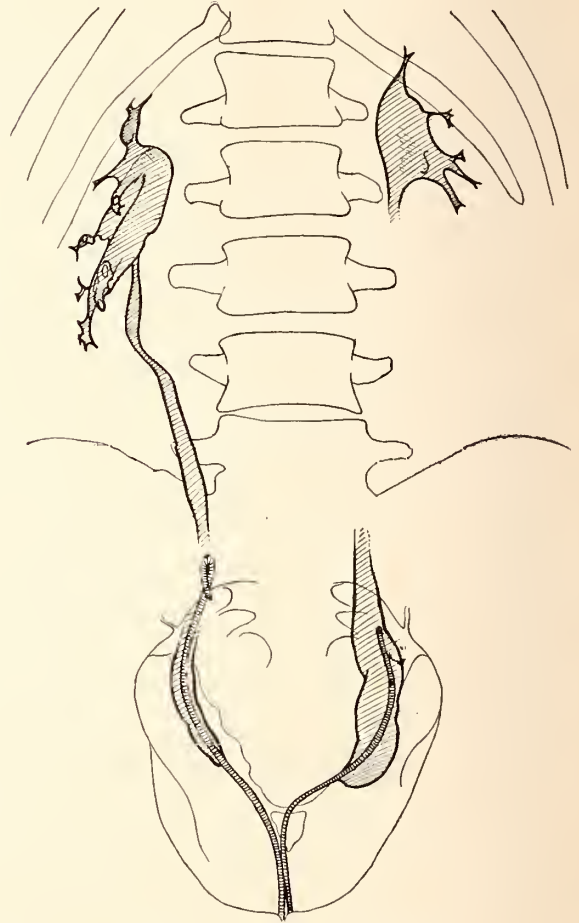
The microscopic examination of the tissue specimen showed no malignant changes.

The patient was treated by dilation of the left ureteral orifice, also by oral and intravenous medication, with complete relief of the symptoms and disappearance of the infection.

The patient was advised of his condition and urged to lead a normal life except to avoid strenuous exercise; he has remained in excellent health up to the present, a period of two and one-half years. He has 35 to 40 years of useful life to look forward to; there is every reason to avoid making a neurotic invalid of him.

Case (5), male, aged 55: He was uremic

when first seen. His father had died of "abnormal kidneys." The general health of the patient had been good until onset of hematuria nine years before. Diagnosis of polycystic disease had been repeatedly made. The present attack began two weeks prior with colicky pain in the left side radiating to the penis. The blood pressure was 250 systolic. No nausea or vomiting had been present. The temperature had been up to 102°. Severe persistent hiccoughs began two days before the patient was first seen.



Case 4. Dilated left ureter.

Examination revealed a restless, disoriented, critically ill white man. The lower pole of the right kidney was palpable, slightly enlarged, but not definitely tender. A large, somewhat irregular mass could be felt in the left kidney region. The lower border extended two cm. below the umbilicus and moved with respiration. The mass was slightly tender. The urine showed a large amount of pus, moderate numbers of red blood cells and many bacilli. The N.P.N. was 67 mgms. per 100 cc. blood. An intravenous pyelogram showed nothing. The



urinary infection was treated by ureteral dilation and retention catheters in the ureters. There was no evidence of hydronephrosis. The N.P.N. rose to 39 mgms.; a fatal outcome was expected. Improvement began, however, after about two and a half weeks, and a month later he was as well as before the attack. This recovery is remarkable, but the ultimate prognosis remains poor. It is probable that infection played the principal role in this attack; the story indicates the value of treating urinary infection vigorously whenever present in polycystic kidneys.

Table one shows some interesting things about these cases. In four cases—(1, 2, 3, 5)—the initial symptom complex included symptoms undoubtedly due primarily to the polycystic disease, and all of these were approximately the same age when the symptoms appeared. In the fifth case (4), that of a young boy, the symptoms were due entirely to the infection and ureteral obstruction complicating the polycystic disease. In case (1) the chills and fever resulting from infection occurred simultaneously with hematuria and back pain. This raises the question of whether the onset of a spontaneous infection can precipitate the symptoms—perhaps about to assert themselves in any case—of polycystic kidney. In cases (2) and (5) infection occurred at later stages of the disease. Suitable treatment overcame the infection for a time in case (2), but it recurred spontaneously some months later. The infection present in case (4) was completely eliminated by treatment, and has not recurred for 2.5 years.

At sometime, however, four of these cases—80 per cent—had serious urinary infections which increased the illness of the patients and the difficulties of the physician, and undoubtedly hastened death in the two fatal cases.

We hold that valuable lessons can be drawn

even from such a small group of cases. Polycystic kidneys are fairly common; these five cases appeared in four years; polycystic kidneys appear before the physician in many disguises. A pyelogram will usually fix the diagnosis definitely; in one of these cases an intravenous urogram was adequate for diagnosis.

Little or nothing can be done to influence the course of the polycystic disease; it is obvious from these histories that eliminating infection and removing obstruction may be immensely beneficial. These things should be done as early as possible. They will probably prolong the patient's life, and at least will allow him to die peacefully of uremia instead of stormily of urinary sepsis.

DISCUSSION

DR. KETCHERSIDE: I have little to add. The cases were very instructive. Diagnosis of polycystic kidney is often most difficult. The symptoms often reveal nothing definite. Pyelograms are not always definite and may be unsatisfactory. Treatment is unsatisfactory as there is little to be done especially if the case is advanced except to alleviate pain.

DR. BLEDSOE: We have on record the case of three boys in one family who have had this disease, bearing out the theory that the disease is hereditary. The first and second boys in the case have died, both about two years after the onset of the ailment. The third boy is now 36 years of age and still living. He does not know his condition and is not aware that he has the disease that carried off his brothers. The mother died at 41 of cancer. The father is living at 83.

DR. DAVIS in conclusion: There is little to add in the limited time. The paper did not go into the theory of causation as that is covered in text books. We have found diagnosis by pyelogram quite reliable. There is a great variation, of course. Some of these cases fairly strike you in the face, while others do not show what you would expect to find. Carcinoma of the kidney may be taken for polysystic kidney, but rarely so. Case (2) was characteristic of polycystic kidney.

P't	Sex	Age onset	Age death	Dura. of sympts.	Init. Symptoms	Later Symptoms	Infection	Complications
(1)	F	44	49	5 years	hematuria, pain, chills and fever.	uremia.	yes	infection.
(2)	F	52	56	4 years	hypertension, pain in back.	hematuria, frequency, dysuria, uremia.	yes	ureteral stricture infection.
(3)	M	47	—	1½ years	hematuria.	pain in back, frequency, dysuria.	no	none.
(4)	M	15	—	4 days	frequency, dysuria, pain in l. kidney.	—	yes	congenital stricture l. ureter, hydro-ureter, infection.
(5)	M	46	—	9 years	hematuria.	pain in back, fever and chills, uremia.	yes	infection, contracture of vesical orifice?

TABLE ONE,

## PRESACRAL GANGLIONECTOMY FOR DYSMENORRHOEA

By A. K. DUNCAN, M. D.  
Douglas, Arizona

Although my experience with only five cases is extremely limited, I have been encouraged to choose this subject for two reasons. One was a report of a case before this society two years ago of a hysterectomy for dysmenorrhoea in a young girl, and second, the fact that a report was made on only six cases from Mayo's showing that this operation has received very little attention in this country; seems strange when the results have been so uniformly good. Here I would like to quote from Wetherell: "In this contribution I might well begin by paraphrasing the remarks of Dr. Edward Archibald, who, before the seventeenth annual meeting of the National Tuberculosis Association in 1921 called attention to thoracoplasty as an aid to the cure of pulmonary tuberculosis. He said: 'America is not generally supposed to be *arriere*, in matters surgical, nor is she; yet it is somewhat strange that in this country the treatment of certain types of pulmonary tuberculosis should have remained so far behind the standard set for some years back, in Europe.' The substitution of 'pelvic pain' for 'pulmonary tuberculosis' expresses what I mean."

The term, presacral ganglion is, as you all know, a misnomer. Superior hypogastric plexus is better, as this collection of nerve filaments is a plexus and not a true ganglion; and in addition the trigone in which this plexus lies is at the level of the fourth lumbar vertebra, and the last intervertebral cartilaginous disc, and the fifth lumbar vertebra, so even the term presacral is inaccurate, although the hypogastric nerves may cross the anterior surface of the sacrum. I believe that these terms will soon be dropped, in fact, presacral nerve is being substituted for presacral ganglion, but I believe that it would be far better to use the term superior hypogastric plexus.

"The female genitalia are supplied by three groups of nerves—one, the pelvic sympathetics (superior hypogastric plexus of Hovelacque, or presacral nerve of Latarget);—two, the utero-ovarian nerves, or internal spermatics;

—and three, the internal pudendal nerve. The first two groups supply the internal genitalia and vagina and the internal pudenda nerve supplies the external genitalia and perineum." (Cotte<sup>3</sup>.) The relief of pelvic pain by surgery on the sympathetic system was suggested as far back as 1899 by M. Jaboulay<sup>4</sup>. Various operations were suggested, mostly of the types of periarterial sympathectomy of the lower aorta and common iliacs and hypogastric arteries. Even up to 1925 Tusserand reported relief of pain in cancer following a bilateral hypogastric periarterial sympathectomy, and at the same session of the Surgical Society of Lyons, Leriche reported complete denudation of the terminal abdominal aorta and upper portions of the iliac and hypogastric arteries. I will not deal with this type of sympathectomy as it is certainly a tedious and far more formidable operation than that suggested by Cotte in 1925, which first drew attention to the good results that may be produced by the far simpler resection of the superior hypogastric plexus, although he admits that in extensive cancerous involvement of the pelvis, complete relief of pain may only be obtained by a combination of hypogastric periarterial sympathectomy and resection of the presacral nerve. In fact, a prophylactic resection of the sympathetic nerve may be expedient in all operations for removal of the cancerous uterus. Ferey has already adopted this suggestion. "Among the first to utilize resection of the presacral nerve successfully for the relief of pain of inoperable cancer were Ferey and Desmarests. More or less similar results were obtained by Bernard, Theodoresco, Paolucci, Walthard, Cosacescu, Guiot, Leriche and others." (Cotte<sup>5</sup>)

### ANATOMY

To those interested, I know of no better reference to the surgical anatomy of the presacral nerve than can be found in an article given that title by Elaut and another by Fonatine and Hermann<sup>7</sup>. I have taken the liberty of attempting to reproduce, schematically, some of the variations that he has shown in his illustrations, and the anatomy and operative procedure by Adson and Masson. This anatomical research by Elaut was undertaken when the surgical significance of the presacral nerve came into prominence in 1924 when Cotte suggested performing neurotomy to relieve pain in diseases of the pelvic organs such as essential



dysmenorrhea and sclerocystic ovaries. The same operation is now performed with success in relieving pain associated with cancer of the uterus, with cystalgia of diverse origin including cord bladder, with pruritis vulvae, with vaginismus, and with dyspareunia. His paper is based on a careful dissection and study of 50 cases with attention directed chiefly to the following points which should be kept in mind in performing a Cotte operation:

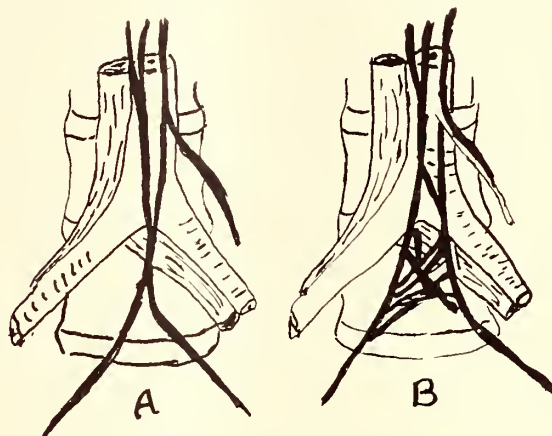
1. The anatomy of the nerve and its branches, its origin, division, and endings.

2. Particular position of the nerve in the frame of the inter-iliac trigone; its relation to the neighboring organs, such as the aorta, iliac arteries and veins, the inferior mesenteric arteries and veins, the middle sacral artery, the ureters, the sacrum, and peritoneum.

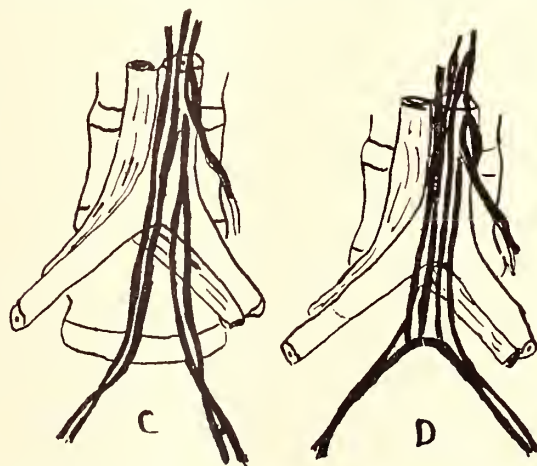
**Origin.** On the lateral margin of the abdominal aorta, (from the origin of the superior mesenteric artery down to the origin of the inferior mesenteric artery) two nerves may be seen. The nerve formations are arranged in two parallel bundles with, from time to time, an oblique anastomosis running across the aorta and reaching its partner on the opposite side, the bundles sometimes run together on the anterior wall of the aorta for about one centimeter, where they again separate. To these intermesenteric nerve branches add the anastomosis coming from the lumbar sympathetic chain. At the level of the origin of the inferior mesenteric artery, the intermesenteric nerves divide into two distinct bundles; the inferior mesenteric plexus running along the artery itself, gives off a thin arborization of nerves located within the arterial walls of the mesenteric vascular system; the second is the "plexus hypogastricus superior" of Hovelacque. This plexus still consists of two main bundles which are parallel at a distance of about one centimeter from each other and have a definite tendency to join so as to make a distinct branch. From the bifurcation of the aorta the superior hypogastric plexus (presacral nerve or ganglion) shows many variations before it finally divides into the two distinct branches, the hypogastric nerves, which cross the sacral promontory to finally join the important inferior hypogastric plexus and ganglion. Grossly, the superior hypogastric plexus parallels the middle sacral artery, passing over the left

common iliac vein and separated from it by soft areola tissue, making it possible for the entire plexus with its ramifications to be lifted intact from its bed on the structures below.

The important area in this particular surgery is an easily definable trigone, the sides limited by the common iliac arteries, its top



formed by the bifurcation of the aorta, and its base by a line joining the common iliac arteries at the level of the promontory of the sacrum. This area has been called the inter-iliac trigone. The base is about seven centimeters across and from the top to the base, about six centimeters (roughly  $2\frac{3}{4}$  and  $2\frac{1}{4}$  inches). In this area lies the entire superior hypogastric plexus. The division into the hypogastric nerves practically always occurs



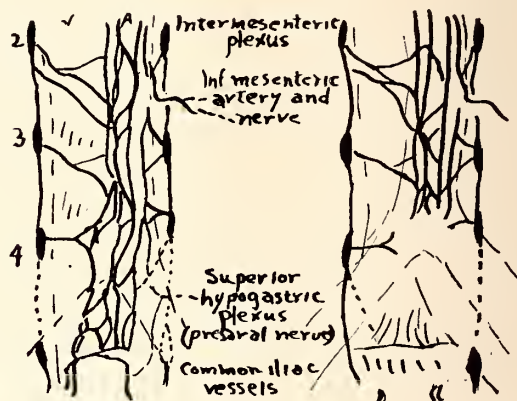
above the sacral promontory. The left half of this trigone is largely occupied by the left common iliac vein whose thin walls may be easily injured, especially as the plexus always crosses it. Deep in the center lies the middle sacral artery with its veins, and it must not be mistaken for the nerve. It can be felt by the

exploring finger and at no time, even when under direct observation, can the nerve be palpated. The larger nerves and greatest part of the plexus are apt to be found in the left half of the trigone. The entire trigone is covered by peritoneum, the plexus lying between the peritoneum in front, and the blood vessels and lumbar vertebra behind. The nerves do not adhere to the peritoneum, which can be lifted from them with forceps. The right ureter is adherent to the peritoneum at this level, a point to be remembered. Occasionally a vein will be found crossing the trigone from one side to the other joining the two common iliac veins. The inferior mesenteric artery, especially branches to the sigmoid and upper rectum, may be in direct contact with the plexus. In case of a long mesocolon attached further to the right than usual, the trigone instead of appearing directly under the peritoneum will be buried under the attachment of the mesocolon with its important blood supply, requiring it to be freed on the right side and pushed to the left to expose the plexus, or the operation abandoned. It is in such cases that care must be taken not to injure the right ureter. This condition was found in 14 per cent of 50 dissections, and in eight per cent direct exposure of the plexus would have been practically impossible. Exceptionally a true nerve may be found, occasionally parallel nerves, but mostly a true plexus formation, the individual variations being marked; but whatever form the nerve fibres assume in the interiliac trigone, the entire structure resembles an elongated triangular ribbon or is roughly shaped like the foot of a goose, being composed of a fairly fibrous structure with interwoven nerve branches. This triangular mass receives many secondary nerve branches from other sources such as the inferior mesenteric plexus which lies within the mesocolon and from the left ganglion of the lumbar chain. In one case, an anomaly—the presacral nerve was not in the interiliac trigone at all, but had detoured high up into a long floating mesocolon where it divided into the hypogastric nerves and then descended into the pelvic cavity.

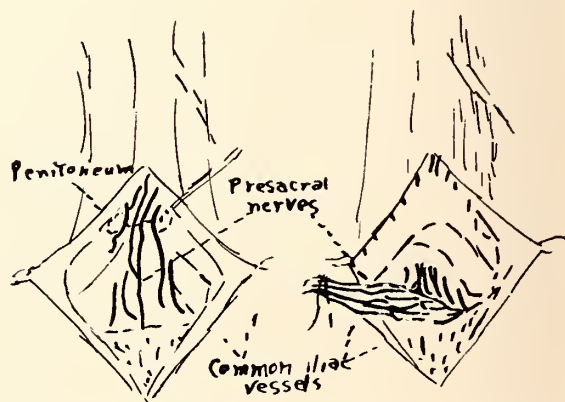
#### OPERATION

Midline incision, I find gives better access if carried a little above the umbilicus. Exploration in the Trendelenburg position, the

bowels held well up in the abdomen with a pack. Particular attention is given to the pelvis where any gynecological pathology found should be corrected. The bifurcation of the aorta and common iliacs is now identified and in thin individuals without fat under the posterior peritoneum the plexus may be seen. The peritoneum lying over the interiliac trigone is now grasped with forceps and readily



lifted from the structures below, as it is not adherent, and incised for a distance of about six to eight centimeters (2½ to three inches) starting just above the aortic bifurcation, and with blunt dissection (a small piece of gauze on a forcep serves well) the trigone is well exposed. In most cases the plexus is now readily seen, its type and extent ascertained. The upper end of the plexus about the level of the aortic bifurcation with its fibrous sup-



port or scaffold, is now lifted with a suitable instrument. It may be grasped with a forcep (care being taken not to injure the arteries or the left common iliac vein), or a hook introduced behind it from one side to the other, and the plexus then lifted. I use a hook for this purpose because when I raise the plexus



it sometimes brings into view branches that were not included over the hook and with a second hook I can lift them on to the first until I feel sure that I have secured them all. Then the mass can be held in a forcep and divided across the top. The blunt dissection is now carried downward, care being taken to remember that the plexus widens with the trigone and that the lateral branches must be included, because failure to do a complete resection for a sufficient distance may result in failure to give relief. With the dissection complete and all branches included, an inch or more of this mass including the plexus is resected. Examination showing all bleeding controlled, the peritoneum is closed with 00 plain catgut and the abdomen closed in the usual manner.

As I have done but five of these resections, I am not going to report these cases in detail until I have a longer series, but will give the impression that I have received from this small number.

1. That I was lucky not to run into any inoperable cases in my first few, such as finding the base of the mesocolon covering the interiliac trigone.

2. That anyone who has the right to claim that he is an abdominal surgeon may master the technique of this operation if he cares to make a study of it.

3. The results in my small series are excellent, so far, and accord with the reports of others. All cases have had the painless flow simulating menstruation within 48 to 72 hours after operation, the regular period occurring later at the regular time. Catheterization is probably more frequent than following other gynecological operations.

4. As stated above, I have not yet encountered one difficulty named, and that is the overlying mesocolon, but I did encounter a very troublesome venous oozing in one case which was annoying, as has been reported before, but it did not prevent a satisfactory completion of the operation. One of my earlier cases on a young, very fat girl (evidently an endocrine gland disturbance which failed to respond to attempted gland therapy) proved troublesome, as with the large mass of fat above and surrounding the plexus, I found it difficult to be sure that I had resected all of the nerve branches, but the final result indi-

cates that I probably did. They were the only difficulties encountered so far.

5. All cases so far have shown gross changes of the ovaries, sclerotic or sclerocystic, if no other pathology, and I believe from personal experience in many gynecological cases that this finding is frequent. I naturally have not had an opportunity to observe, nor have I seen any reports of observations—either post mortem or at subsequent operation—on the condition of the ovaries following resection of the presacral nerve. We know that the pain is relieved, but I do not know whether these ovaries tend to return to normal or not. I am inclined to believe that they do, or at least improve, because my cases and all reports show that, regardless of the type of irregularity the menstrual periods tend to return to normal.

This brings up an interesting question. Cotte and others believe that often the primary condition is a dysfunction in the sympathetic nervous system, and the endocrine gland changes being secondary. (See Crile's ideas on changes in other endocrine glands that he attributes to sympathetic dysfunction and cures by resection of the sympathetics). We need more reports on this subject. Should this prove true, it would greatly increase the indication, or broaden the scope for selecting this operative procedure. Indications for sympathetic resection in dysmenorrhea (the time is too short to go into others) have been fairly strictly limited, and my few cases will show that I have not applied this operation indiscriminately.

#### INDICATIONS

Severe disabling pain at the menstrual period, which has existed over a period of time, often associated with pain of a neuralgic type in the pelvis and back between periods. If no adequate explanation for this pain can be found on physical examination, and it has resisted all the usual methods of treatment, a good indication for a sympathetic resection exists if you wish to give permanent relief in this type of case. Some cases have had previous surgery without relief, such as dilatation and curettage, and laparotomies for suspensions, resections of ovaries, etc. It is not indicated where, at exploration, definite pathology is met which adequately accounts for the pain. As previously mentioned, I believe

careful examination will show a high percentage of these cases showing a sclerotic change in the ovaries and I think that these ovaries should not be removed as their function seems to become more normal after the sympathetic resection, and I suspect that anatomical improvement also takes place. Cysts of the ovaries should be resected, disturbing the ovarian structure as little as possible.

The relief experienced by these patients has been so gratifying that I am now inclined to believe that I could advocate sympathectomy somewhat sooner than I have done up to now, although in every case an adequate trial of other methods at our command must have proved failures first. Many an abdomen has been opened to remove an appendix which caused the patient far less trouble than the severe dysmenorrheas which do not yield to the usual treatments, and surgery that can be counted on to relieve this condition is fully justified, as the patients will assure you. My experience in five cases is over a period of about three years, the last case in November, 1934.

#### SUMMARY

Surgery of the pelvic sympathetic nerves is well established, and resection of the presacral nerve (or ganglion) for intractable dysmenorrhea has proved to be a safe and satisfactory method for the immediate and lasting relief of this periodically disabling condition.

This operation, which can be performed by any competent abdominal surgeon, has not received the recognition in this country that it merits, resulting in unsatisfactory temporizing methods of treatment in intractable dysmenorrhea, or unnecessary hysterectomy, or the use of radium or x-ray, which are distinctly contraindicated in the young as a cure for this condition. The resection of the superior hypogastric plexus is safe and is not followed by any serious complications, and in no way interferes with conception, gestation, or delivery.

#### CONCLUSIONS

Resection of the presacral nerve should be performed more frequently in this country on cases having the necessary indications. All cases should be reported where opportunity arises to observe at post mortem or subsequent operation, the condition of the ovaries subsequent to operation on the pelvis sympa-

thetics and comparison made with that found at the time the sympathectomy was done, as it is important to know whether sclerotic or sclerocystic ovaries improve following this operation.

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## PREHISTORIC SYPHILITIC LESIONS

(An Example from North America)

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The probability of the existence of syphilis in prehistoric times has been a fertile source of contention among scientists for generations. The recent researches of the paelopathologist, however, have recovered many specimens showing pathologic bone lesions which can be considered only as luetic when carefully compared with clinical material in which the diagnosis of syphilis is established.

Comparative work in this field has recently been undertaken by several investigators, the most important being that of H. U. Williams.<sup>1</sup> He has comprehensively surveyed the problems of prehistoric syphilis, considered the significant historical events and the complex archaeological problems, and established



criteria for the diagnosis, comparison and differentiation of bone lesions.

The University of Chicago Archeological Survey, while excavating a mound in Fulton County, near Lewistown, Illinois, in 1931, recovered portions of a skeleton with interesting lesions. The specimen, F. 12-14, is an incomplete burial, represented by the tibias, fibulas, all the small bones of both feet, and the distal epiphyses of the femurs. These bones had retained their normal relationship and showed no evidence of disturbance. They

faces where the enlargement is not so evident. The fibulas have symmetrical fusiform en-

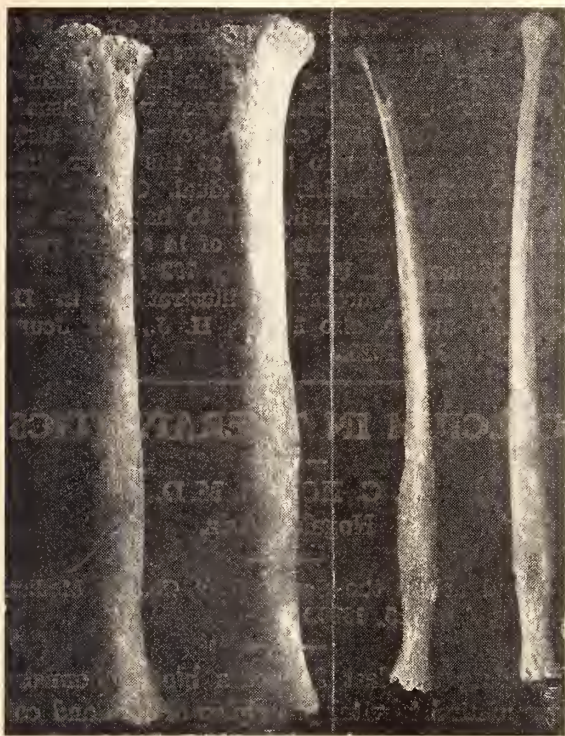


Fig. I. Tibias and fibulas of F. 12-14, showing the symmetrical bilateral involvement in distal third of shafts. Note depressed ulcer-like areas near lower ends of fibulas.

may have been a portion of a bundle burial. These bones belong to the early period of the mound formation and, are considered prehistoric in the sense that they are undoubtedly pre-Columbian.<sup>2</sup>

The individual represented was between 14 and 18 years of age<sup>3</sup>, sex indeterminate. The pathologic details of these bones, indicative of syphilis, are as follows:

Grossly the tibias have puffy, nodular swellings below the middle of the shafts. The surfaces of the swellings are vertically striated and finely porotic, except on the posterior sur-



Fig. II. Longitudinal section of right tibia, illustrating clearly the periosteal new bone deposits, the junction between this and the original shaft, or the "border stripe."

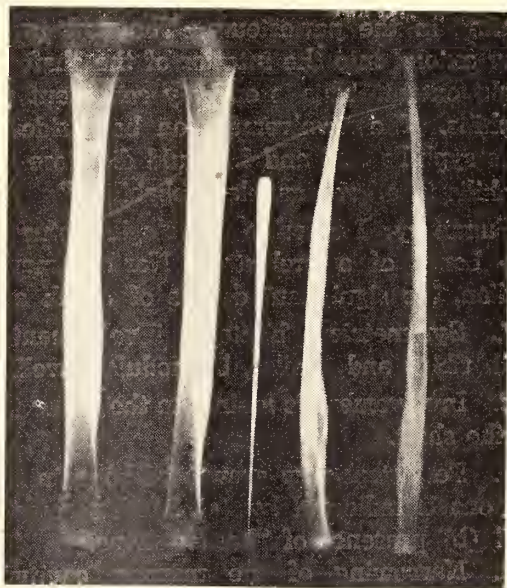


Fig. III. Roentgenogram of bones shown in Fig. I, with features similar to those described macroscopically. The increased density in the involved regions is apparent.



largements, involving the distal third of the shafts, which have destroyed the characteristic shape and markings of the bones in this region. The surfaces are similar in appearance to those of the tibias. In the lower portions of these enlargements are oval, shallow, ulcer-like, areas of porotic bone, probably representing regions of increased vascularity. (Fig. I.)

In longitudinal section the nodular swellings of the right tibia appear as more or less regular deposits of dense, ivory-like bone. This new bone, having originated from the periosteum, is deposited on the outer surface of the original shaft. At the junction between the old and new bone is a line of demarcation known as the "border stripe." (Fig. II) The marrow cavity is narrowed in the region of the obviously involved parts, indicating more than a superficial reaction.

The roentgenograms of the bones show, localized periosteal nodes, the increased density in these regions and, the narrowing of the marrow cavity,<sup>5</sup> corresponding with the macroscopic observations. The reproductions of the roentgenograms do not show the border stripes as clearly as do the original plates. Dr. H. U. Williams has kindly examined the roentgenograms, and in a personal communication states: "the fibulas and tibias . . . show a thickening from new growth of bone originating in the periosteum. The new growth may extend into the interior of the shaft to a slight extent. This is entirely consistent with syphilis. The involvement on both sides favors syphilis . . . and I should diagnose it as syphilis in all reasonable probability."

Summary: I describe pathologic features in the bones of a prehistoric North American Indian, the significant details of which are:

1. Symmetrical bilateral involvement, of both tibias and fibulas, by nodular swellings.
2. Involvement is mainly in the lower third of the shaft.
3. Periosteal new growth of bone in these regions is indicated by (a) fusiform swelling and (b) presence of "border-stripe."
4. Narrowing of the marrow cavity by bone growth reaction.
5. Roentgenographic evidence substantiating the above observations, with increased density in the regions affected.

With this combination of criteria I believe I am justified in making a diagnosis of adolescent luetic periostitis.

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2. Recent discoveries in this region by the Archaeological Survey during the summer of 1932 have brought to light effigy statuettes and other artifacts which definitely link this culture with the Hopewell of Ohio.
3. This calculation is based on the epiphyseal unions. The epiphyses of the phalanges of the feet are all fused, placing the age of the remains between 12 and 14 years. The distal epiphyses of the tibias and fibulae unite between the 14th and 16th years, but are not united in this individual; neither are the proximal epiphyses, which usually fuse during the 17th or 18th years. The distal femoral epiphyses also unite at the latter time, but are separate in this individual. On this basis we may judge the individual to have been approximately between the ages of 14 and 18 years.
4. Williams, H. U. Ibid. pp. 792 ff.
5. See roentgenographic illustrations in Dr. Williams' article, also Means, H. J., Am. Journ. Radiol. 13:395, 1925.

## CALCIUM IN THERAPEUTICS

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(Read before the Santa Cruz County Medical Society, April 15, 1935.)

During the last 25 years blood chemistry has pointed to vital principles of life, and calcium deficiency has been noted in a large number of pathological conditions, many of which have been beneficially changed by making up the deficiency. I have surveyed the literature and herewith report my findings and my experience in the use of calcium.

The normal calcium content of the whole blood is about 0.5 gram of calcium. About seven mg. are found per 100 cc. Even slight variations from this may be harmful; excess leads to hypercalcemia, a rare condition little understood; a deficiency of 10 per cent causes serious disease.

Sherman called attention to calcium deficiency of the average American dietary. Minimum daily requirements call for 0.5 gram while the optimum allowance should be one gram. This cannot be supplied from the ordi-



nary mixed meal; special articles such as milk, cheese, etc., are required. Sherman's experiments on rats showed a 10 per cent higher vitality and longevity by the influence of increased calcium in the diet.

A large supply of calcium is present in the bones and this store can be drawn on for a considerable period. It is, however, entirely possible that the calcium depletion of the bones in old age, which is considered a normal manifestation, may be but the result of a prolonged insufficiency in calcium intake.

Calcium is absorbed from the small intestine. Solubility is essential for absorption. Insoluble calcium salts form in an alkaline medium and are not absorbable; measures that promote intra-intestinal acidity favor absorption. The long-lived Bulgarians of Metchnikoff fame, who lived on a diet largely composed of sour cabbage and sour milk, may have owed their unusual vitality to optimum calcium and optimum acidity. Lactose in the diet increases the absorption of both calcium and phosphorous due to the increase of lactic acid. Vitamin D also increases absorption, probably by a phase of calcium metabolism. Adequate parathyroid function is necessary. Factors interfering with absorption of calcium include: Alkalies—by forming insoluble calcium salts; excessive fats—fatty acid combinations forming insoluble soaps; phosphorus in excess forming tertiary calcium phosphate; oxalic acid (from leafy vegetables)—forming insoluble calcium oxalate; and maltose, starch and the cereals, including bread which decrease the absorption of calcium and hinder the calcification of bone.

Calcium taken with meals is hindered from absorption as the intestinal acidity is then at its lowest. For best results calcium should be given in the interdigestive periods.

The optimal quantity of absorbable calcium may be obtained from 25 pounds of cheese or one quart of milk. The calcium of cow's milk is not always available because a considerable portion may be shut up in the insoluble curd. Lactose favors its utilization.

To favor assimilation of calcium of milk, high vitamin is necessary—30 drops of viosterol and six to eight ounces of orange or tomato juice. If calcium salts are substituted for milk or cheese, cod-liver oil or its concentrate is necessary to supply vitamin A.

Bread, other starches, butter and oil should be omitted to make conditions favorable for absorption.

Calcium in the formation and maintenance of normal teeth and bones has long been recognized. Sunlight, vitamins, cod-liver oil and viosterol are beneficial in the maintenance of calcium equilibrium. Rickets has lost its terror since the advent of viosterol. Viosterol is routinely used in pregnancy.

Bauer, Sauter and Aub, in their study of calcium and phosphorus metabolism as related to lead poisoning, state: "The results obtained from intravenous use of calcium chloride in individuals suffering from lead colic were most dramatic. There was almost immediate cessation of pain, frequently before the injection was completed. Such prompt relief made it seem highly improbable that the beneficial effects of calcium chloride were due to fixation of lead and calcium in the bones. Was not this immediate relief due rather to an antispasmodic effect of calcium chloride?"

"In order to elucidate further its mode of action, it was administered in other types of colic than that produced by lead, such as ureteral and biliary colic associated with stones. The results were startling even in some cases where morphine had had no effect."

Their conclusions were as follows: "The very slow intravenous administration of 20 cc. of a sterile solution of five per cent calcium chloride promptly relieves the severe pain of colic caused by, lead, or uretral, or biliary stone. The relief afforded by such therapy is more rapid and more constant than that by other forms of treatment we have employed."

Calcium in the form of tricalcium carbonate seems to have definite superiority over sodium bicarbonate in the treatment of peptic ulcer as it is inert except in the presence of acid and does not stimulate acid production nor produce alkalosis.

Good results have been obtained from calcium lactate by mouth in the treatment of neuralgia, neuritis, chronic rheumatism and headache. Peritz describes the use of parathyroid hormone with large doses of calcium as producing relief from neuralgia in a strikingly short time. Behan employed calcium for the relief of pain in cancer patients with wonderful results except in bone metastases. He gave

two grams or more t.i.d. and was able to dispense with narcotics.

Calcium has a real value in certain conditions of hemorrhage. It is extensively used pre-operatively to speed up blood clotting. Hubrich cites a case of post-operative embolic hemorrhagic infarction of the lung in which timely intravenous and intra-muscular injection of calcium gluconate were life saving. He advises the use of calcium gluconate as a hemostatic, especially in nervous patients with severe hemorrhage and threatening collapse.

I have had success with calcium chloride, before the days of gluconate, in various forms of severe hemorrhage including pulmonary, gastric and others. Fifteen years ago I had a spectacular demonstration of the effect of calcium chloride in hemorrhage. A shop employee suffered a cut over the temple, injuring a branch of the temporal artery without severing it. As the edge of the cut fell naturally into good position, no suturing was done; that night the artery developed a small aneurysm which ruptured, and before discovery, produced a severe hemorrhage. I injected calcium chloride—five cc. of a 10 per cent solution; the bleeding stopped in four minutes. Five days later the aneurysm again ruptured with free bleeding and again promptly responded to calcium injection.

I have had more success with calcium than with theobromine, ammonium chloride, novasurol or any other medicine except salyrgan in anasarca, ascites and edema. One year and a half ago I had a patient with an enormous ascites, of obscure origin, possibly luetic, who responded within a month to oral doses of calcium gluconate.

O'Donnell and Levin report the case of a child who was given a total of 155 cc. of 10 per cent solution of gluconate in three weeks with a loss in edema of 29 pounds and 11 ounces, or at the rate of 0.5 gram per pound of fluid.

A writer says inflammation occurs only in the presence of sodium, and that calcium replaces sodium and water, stopping inflammation.

Post-operative tetany and parathyroprival tetany are both influenced by calcium and phosphorus intake as shown in parathyroidectomized rats. Post-operative tetany can be controlled by calcium in large doses, with lactose, without the addition of parathyroid extract.

In spasmophilic tetany, Abr says that in convulsions of the new born the diagnosis of cerebral hemorrhage is more frequently made than is warranted as shown by autopsies. A therapeutic test of giving calcium is indicated in all cases. McGavran reports a severe case successfully treated by dosage of 0.5 gram of calcium chloride every hour, with less frequent doses of viosterol and phenobarbital. Peterman, for convulsions in infants, recommends intravenous and intramuscular injections of calcium gluconate followed by viosterol in large doses, and phenobarbital by mouth or rectum.

Maternal, idiopathic, infantile or thyroprivic, tetany including pseudothymus enlargement, call for combined treatment with parathyroid, viosterol and calcium.

Dysmenorrhea is benefited by calcium gluconate by mouth four grams daily for 10 to 14 days before and for first two days of period. Add viosterol if desired.

Migraine is sometimes associated with low serum calcium and in any case the calcium therapeutic test may be beneficial.

I have had two cases of persistent urticaria in which causative factors could not be defined and which improved notably under parathyroid and calcium.

In eclampsia, Anderson of London, reports that 82 per cent of his cases of eclampsia showed subnormal serum calcium. This suggests the possible beneficial use of intravenous calcium in such cases.

Polyneuritis in pregnancy, as interpreted by tingling, numbness, cramps of legs and hands, insomnia, stiffness of hips, general malaise and nervousness can be promptly controlled by calcium.

Toxicity and albuminuria in pregnancy is benefited, according to Mutch, by salicylates and calcium in the form of calcium aspirin made by a new method. I have treated acute orchitis, epididymitis, salpingitis and prostatitis for the last 10 years by intravenous injection of calcium chloride or gluconate. I use no other medication. Improvement begins at once and is usually complete by the 5th day. It is less effective in gonorrheal arthritis, cystitis, urethritis or acute membranous infection.

Calcium thiocyanate is being used in hypertension, both essential and sclerotic. Its use is suggested for climacteric hypertension and for



all forms of sclerotic disturbances of the vascular system.

Calcium with vitamin D has been recommended by many observers in pulmonary tuberculosis, bone tuberculosis and even for bone repair after traumatism. For the diarrhea of tuberculous enteritis calcium is mentioned in nearly all textbooks.

Walker of England states that calcium deficiency is frequently the cause of progressive myopia in the growing child and claims favorable results from calcium therapy in this distressing condition.

Lowenthal reports 500 cases of tropical ulcer, a majority of which showed rapid healing on daily injections of calcium chloride. He considers tropical ulcer a deficiency disease and a great cause of death and disability among Africans. This suggests its use in other forms of indolent ulcer as possible deficiency diseases.

Calcium is recommended for certain forms of acne and other skin affections. It counteracts arsphenamine skin reactions and other arsphenamine accidents. Lacking sodium thiosulphate it should be used in arsenic, lead and mercury poisoning.

According to Stewart the active principle in the successful Maggot treatment of osteomyelitis is calcium carbonate, extruded from bodies of maggots. A similar active principle is liberated in deep tissue by the action of picric acid.

Rheumatic disorders are frequently benefited by calcium. The first few injections may cause exacerbations, but may be effective in 10 to 25 days.

Calcium combined with methenamine by mouth, or injection in gastritis is effective. Methenamine alone may cause kidney and other complications which are prevented by calcium.

The new product, calcium-aspirin, is claimed by Mutch to be beneficial in chorea—sedative and anti-rheumatic.

Chiray uses calcium 10 per cent solution, five to 10 cc. daily or every other day, for 10 to 15 treatments with or without parathyroid extract. It increases biliary calcium and reduces or banishes pain. He uses it as a basal treatment or preparatory to operation.

Calcium deficiency is noted in the blood serum in pneumonia and replenishment by one

means or another may be beneficial.

In conclusion I wish to declare that while calcium cannot claim specificity for any of these conditions for which it has been recommended, it is always desirable to bear in mind the importance of normal standard amounts in the blood serum.

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## ARTIFICIAL PNEUMOTHORAX IN THE TREATMENT OF PNEUMONIA

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The causative organisms in this series of six cases were pneumococci. All had pneumothorax treatments; all recovered. I also present a review of the literature.

Recent authors agree with the work of Coryllos and Brenbaum<sup>1</sup> that the lesion begins with plugging of a bronchus, producing atelectasis followed by cellulitis; manometric readings, physical findings and x-rays substantiate this belief.

Artificial pneumothorax as a treatment in lobar pneumonia was first introduced by Freidmann<sup>2</sup>, a German clinician, who reported favorable results on a series of seven cases. The same year David<sup>3</sup> reported six cases favorably treated in the same manner.

Ibrahim and Duken<sup>4</sup>, Duken<sup>5</sup>, Jahr and Newmann<sup>6</sup> and Klotz<sup>7</sup> reported 17 cases of pneumonia in children treated with only three deaths.

In 1932 Coghlan<sup>8</sup> reported six cases of lobar pneumonia in which artificial pneumothorax therapy was used with five recoveries and one death. The one fatality was due to an error in the amount of air injected, a large amount having been given.

Anderson<sup>9</sup> reported three cases with favorable results. Li<sup>10</sup> reported six cases, with only one death. Guadarrama<sup>11</sup> reported one case unsuccessfully treated. Perlroth and Topercer<sup>12</sup> reported seven cases treated, with one death and six recoveries.

Isaacs<sup>13</sup> at Cook County Hospital reported seven cases treated by the pneumothorax method with four recoveries and three deaths. The three deaths occurred in patients in which pneumothorax was instituted on the third to

fifth days of the disease. This, Isaacs believes, is a very significant fact inasmuch as the four recoveries were given pneumothorax during the first or second day of the disease.

Lieberman and Leopold<sup>11</sup> recently reviewed the literature showing 50 cases of lobar pneumonia treated by artificial pneumothorax, with three deaths. Behrend and Cowper<sup>12</sup> have reported 11 cases treated similarly, with two deaths. One death was due to meningitis and the other was due to septicemia<sup>4</sup> which had no direct relation to the artificial pneumothorax.

Moorman<sup>10</sup> recently reported eight cases of lobar pneumonia treated by pneumothorax, with one death which he believes to be due to an old nephritic condition.

Holmes and Randolph<sup>17</sup> recently published their striking results in 18 similarly treated cases. They consider this an excellent method of treatment.

There are certain prerequisites before institution of artificial pneumothorax. First is careful history—the exclusion of foreign body, abscess, tuberculosis and carcinoma, and careful physical examination, x-ray of chest, sputum examination, blood count and culture.

**Indications and Advantages:** (1) It is the opinion of those who have used artificial pneumothorax treatment that the condition must be unilateral lobar pneumonia. No doubt that in the near future it will be used in bronchial pneumonia and in bilateral cases just as we are using it today in the treatment of bilateral pulmonary tuberculosis.

(2) To obtain the best results, the treatment should be given early, preferably the first or second day of the disease; our shortest time after pneumonia began was two days; our longest was four days.

(3) The treatment has demonstrated its value in relieving pain. In the following cases to be shown, 100 per cent had severe pain in the affected side, which was promptly relieved by the first injection of air and no opiates were necessary thereafter. Breathing was much easier and deeper. The patients cyanosis disappeared, and more complete oxygenation took place due to greater respiratory amplitude in both lungs.

(4) There is no doubt decreased absorption of toxins from the diseased lung into the blood stream and probably an increased toxin transport to the draining lymph nodes.

Gardner<sup>18</sup> and Warnecke<sup>19</sup> and others have pointed out that the diminished absorption of toxins due to lymphatic stasis produced by artificial pneumothorax has been beneficial in pulmonary tuberculosis. Is it not possible that the same anatomical change takes place in lobar and bronchial pneumonia with corresponding clinical result? If that is true, and I believe it is, the great significance of this fact must not be overlooked when we are reminded that a great percentage of deaths from pneumonia are due to rapid absorption of toxins. Dock and Harrison<sup>20</sup> and others, have found in their experimental work that, within a few hours after the initial artificial pneumothorax is given, 52 to 58 per cent of the total blood flow passes through the collapsed lung but that within 72 hours this decreases to nine to 18 per cent.

(5) I believe with Moorman, Coryllos and Holmes and Randolph, that atelectasis associated with pneumonia constitutes a definite indication for artificial pneumothorax. Atelectasis gives rise to intrathoracic distress due to shifting of the mediastinal structures and marked displacement of great vessels, trachea and heart towards the affected side. Since the shifting of the mediastinal structures is due to the increased negative intra-thoracic pressure, the introduction of artificial pneumothorax gives immediate relief. Griffith<sup>21</sup>, Thoenes<sup>22</sup>, Wallgren<sup>23</sup>, Wu<sup>24</sup>, Terrell<sup>25</sup>, Robertson and Coggeshall, Lieberman and Leopold<sup>14</sup> have shown by their studies that atelectasis in pneumonia is not uncommon.

(6) Pneumothorax in pneumonia hastens crisis, thereby shortening the period of toxicity and preventing damage to the heart, kidney, liver and other vital organs.

(7) Artificial pneumothorax has been used to advantage in pneumonia in chronic asthmatics, as in case number six, where sera may be contraindicated and dangerous.

It must be remembered that the introduction of air into the pleural space is not without danger—spontaneous collapse may occur due to the rupture of the lung by pleural adhesion or by the operator's needle; air may enter the pleural space through a valve-like opening in the visceral pleura and not be able to escape. An accident like this must be watched most carefully. The pneumothorax apparatus must be at hand to remove air collecting in this manner. Pleural shock and air embolism are rare



occurrences—yet should be remembered.

Empyema may develop from extension of the disease into the pleural space or to poor technique and the puncture or rupture of the diseased lung. Therefore, I believe the utmost precaution must be used for one is subjecting his patient to a potentially dangerous procedure.

The site for the introduction of artificial pneumothorax should be not over the infiltrated and diseased area, thereby lessening the danger of empyema to the patient.

Manometric readings are taken and 200-300 cc. of air given slowly and pressure recorded after each 5 cc., particularly during the initial inflation. Daily instillation of 300 cc. of air should be given, unless contraindicated by the manometric readings, until the fever returns to normal.

There is no inflexible rule in regard to the amount of air to be given. Experience with pneumothorax in other conditions, leads me to believe that the closing pressure should be negative and the amount should not exceed 300 to 400 cc. Realizing that the rate of absorption in virgin pleurae is usually high as compared to that of pleurae which have been subjected to many refills, and the desirability of maintaining a fair degree of collapse, all indicate that the interval between fillings should not exceed 18 to 24 hours. Serial x-rays are most helpful in watching the progress of collapse and in detecting fluid.

#### CASE REPORTS

Case (1), 42, male, four days before admission, developed cough and sore throat; was placed in bed; on fourth day came under our care; ill with severe pain in side.

Moderate cyanosis and dyspnoea; teeth in poor hygienic condition; throat markedly inflamed; chest expansion limited, breathing difficult; resonance impaired from apex to third rib anteriorly and from apex to fifth, mid-axillary line and to the sixth posteriorly; breath sounds distant; occasional fine rale heard; heart rate 110, regular; leukocytes 14,000; sputum had numerous pneumococci; second day 250 cc. of air instilled with instant relief of pain; drop in temperature from 104° to 102.2; the next day, the temperature went up to 104° again; 250 cc. of air given; fever fell from 103.4 to normal and rose again the third day to 102.8; 300 cc. of air given; temperature returned to normal; recovered without complications; returned to work 35 days after the beginning of his illness.

Case (2), male, age 31, began feeling feverish; head ached; throat sore; cough dry and irritating; sent to hospital; two days later diagnosis lobar pneumonia; temperature 106; pulse 140; breathing painful; right base beginning consolidation, bronchial breath sounds, and many medium rales; leukocytes 18,200; sputum had many type one pneumococci; x-ray showed consolidation of right lower lobe; pneumothorax; relief of pain and fall of temperature from 106 to 103.6; temperature rose to 105.4 and the following day 500 cc. air given with a drop to 102.6; again the fever rose to 104.4 and 400 cc. air given; definite crisis passed and fever dropped to 98; patient convalesced without complications.

Case (3), age 53, had had a chronic upper respiratory infection for several months with rather frequent colds; pleurisy 18 months ago and in sanatorium 10 months with suspected tuberculosis; silicosis right upper lobe; cholecystectomy 15 years ago; recent nocturia; had acute upper respiratory infection for two weeks with anorexia, sore throat and dry cough; apparently very sick; cough frequent; face flushed; pulse 95; temperature 100; tongue coated; right chest expansion, limited, breathing painful, resonance impaired from 1st to 3rd intercostal space anteriorly, slightly from 6th to base of lung with absence of breath sounds posteriorly; heart rapid; severe pain in right upper quadrant; erythrocytes 4,300,000, hemoglobin 85 per cent; leukocytes 16,000, polys 49 per cent; sedimentation rate 160 mm. in one hour; urine, trace of albumin and few granular casts; pneumothorax instilled with marked relief; symptoms subsided and convalescence was uninterrupted.

Case (4), age 52, white male, upper respiratory infection; fever one day before admission; very ill with severe pain; right lung expansion limited in upper third; dullness from apex to 2nd rib anteriorly and from apex to 5th spine posteriorly; breath sounds harsh; few fine rales; sputum has many pneumococci; leukocytes 16,000; urine had an occasional cast and trace of albumin; pneumothorax fourth day; remarkable relief of pain and drop in temperature; next day temperature rose to 101.6; 300 cc. air given; rapid fall in temperature; following day 300 cc. air given; temperature falling from 101.6 to normal; no pain after first pneumothorax; began eating and gained weight rapidly.

Case (5), male, age 35, came to office with headache, dry cough and pain in right chest; temperature 100, pulse 96, respiration 26 and painful; physical findings negative except inflamed throat; leukocytes 12,000; x-ray showed small lesion in the hilus of right lung; patient sent to hospital and in two days developed full blown broncho-pneumonia; fever 103.6 with pain in chest; 300 cc. of air given second day with prompt relief of pain; rusty sputum had type one pneumococci; each of two following days had 300 cc. air given; third day temperature dropped from 104.6 to 97.6; prompt recovery.

Case (6), male, age 65, began April 7th with cold; April 14th pain in right side and spitting bloody material; an acute attack of asthma; sent to hospital April 14; physical examination negative except asthma; moderate cyanosis; labored and painful breathing; pulse 110; temperature 104.6; res-

piration 38; right chest limited expansion; impaired resonance from apex to the 3rd rib anteriorly and from the apex to the 5th spine posteriorly; absence of breath sounds in extreme apex; bronchial breath sounds just below 1st rib to 3rd rib, with many fine rales anteriorly and posteriorly; occasional coarse rale in left; heart normal; extremities cyanotic; leukocytes 17,400; hemoglobin 98 per cent; urine albumin one plus; granular casts 18-20; hyaline casts 2-4 (L.P.F.); pus cells 6-8 (H.P.F.); 300 cc. air; marked relief of pain; temperature, from 104.6—99 to 100—95; breathing easier; cyanosis disappeared; following day fever rose again; 300 cc. air given; temperature returned to normal and remained there. This patient demonstrates that age is no contraindication to pneumothorax and that patients with asthma, who may safely take pneumococci serum, improve on pneumothorax.

### CONCLUSIONS

Artificial pneumothorax is no "cure all" in unilateral lobar and bronchial pneumonia; it has given relief in pain, reduced toxicity, produced an early crisis and, in a majority of cases made an early return to normal duties possible. I think it particularly advantageous in the aged, and in allergic and asthmatic, individuals with pneumonia.

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### DISCUSSION

FRED G. HOLMES: I am very glad indeed to have this opportunity to open the discussion on Dr. Riggins' excellent paper.

Last year at the Arizona State Medical Meeting, Dr. Howell Randolph, one of my associates, and I reported 18 cases of lobar pneumonia treated by artificial pneumothorax, drawing conclusions similar to those reached by Dr. Riggins.

If one may judge from the literature on the subject, it is striking how few cases of pneumonia have been treated in this manner. Adding the six cases which Dr. Riggins just presented, it brings the reported number slightly over 100. Considering the incidence of this disease, there should be an abundance of material from which one could quickly come to a definite conclusion regarding the value of pneumothorax as a treatment.

Phoenix should take its proper place in working out this problem. Out of 115 physicians practicing here, at least 55 are specialists and would not accept a pneumonia case for treatment. This leaves 60 who would welcome such a patient. There are at least 15 physicians here who are accustomed to administering artificial pneumothorax so that one out of four is already prepared to render this service. With the many existing physician alliances and courtesy exchange of patients it would seem very easy to give the method a fair trial. This and other medical centers in the southwest are uniquely situated in this regard. Dr. Riggins' paper should stimulate a more hearty interest on the part of those treating the disease.

Technically, it is no more difficult than when given for tuberculosis. As the number of treatments are few, it does not call for the experience and judgment which are necessary to carry to a successful conclusion an artificial pneumothorax tuberculous case. Anyone who is reasonably familiar with collapse work should be able to do it.

Dr. Riggins' prediction regarding the use of artificial pneumothorax in the treatment of double lobar and broncho-pneumonia as well as unilateral lobar pneumonia is interesting and may readily be fulfilled. It is striking how small an amount of air is necessary to bring about a favorable result and one need have little fear in giving that amount of air on both sides. If opportunity offers, I shall try such feeling that I am not substituting a more dangerous situation for the one already existing.

Empyema in pneumonia is an ever present dan-



ger, either with or without pneumothorax. In Dr. Riggins' six cases as well as our own eight adult cases it did not occur. We were not so fortunate with the 10 children treated as there were four cases of empyema, two of whom died. Both of these cases had suffered spontaneous collapse which did not lead to sudden death but only after an intervening empyema of one and two months respective duration. No cases have as yet been reported where sudden death followed a spontaneous, complicating an artificial, pneumothorax.

Dr. Riggins made no comparison regarding mortality in pneumonia cases treated by artificial pneumothorax and otherwise. It is well recognized that the severity of pneumonia varies from year to year and in different localities. It might be presumed that the proximity of Tucson and Phoenix and their similar climatic conditions would give them pneumonias which are comparable. Let us consider them as one in making comparison in pneumonia mortality figures. I have the figures for the two hospitals in Phoenix for the last two years. In 1934 there were 97 lobar pneumonias in our local hospitals with a mortality rate of 32 per cent. During that year we gave artificial pneumothorax to 18 cases with a mortality of 11 per cent.

In the first three months of 1935 there were 35 lobar pneumonias with a mortality of 34 per cent. Dr. Riggins has just reported six cases treated by artificial pneumothorax with no mortality. In all the collected cases treated with pneumothorax which now number about 103 including Dr. Riggins' cases the mortality rate is 11 per cent. This is strikingly lower than the 25 to 40 per cent which is found in cases treated by other means. In view of these figures, we may add this marked reduction in mortality rate as an important fifth point to the four mentioned in Dr. Riggins' conclusions.

As expected, marked relief of pain has been reported by all investigators.

Regarding the induction of an earlier crisis, the proof is not quite so positive. Going through Dr. Riggins' case records and adding the indicated number of days until crisis took place, the duration of the pneumonia including the time before and after artificial pneumothorax was commenced, is found to average 5.5 days which is exactly the length of time our own eight adult cases averaged. The 10 children so treated had their pneumonia 6.63 days, which is certainly not convincing.

On the theory that the pneumonia is due to a plug occluding a bronchus, the possibility of bringing about an early crisis probably depends on whether this plug is dislodged by the pneumothorax or not. In some cases this certainly seemed to be the case and the results were dramatic. It is hard to get the cases early enough to make a definite diagnosis and administer the air before the time has also run to where the natural crisis might be expected.

However, if, as it appears, it has been really shown that here is a method which will strikingly reduce the suffering in pneumonia and effect a re-

duction from the existing mortality of 30 to 40 per cent to one of 11 per cent—little else need be said in its favor.

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DR. HOWELL RANDOLPH: Unless results from pneumothorax show striking improvement over other methods of treatment for lobar pneumonia, I should say that this method should be used with extreme caution. The fact that the lung is apt to adhere to the chest wall with resulting complications must be borne in mind. Dramatic results are apt to cause over-enthusiasm and a hasty rushing to a new method of treatment. I recall one particularly dramatic case, which Dr. Kober will no doubt recall, of a small boy who had been desperately sick with pneumonia for four or five days when called to the attention of a physician. Within a few hours after administering pneumothorax in this case the temperature subsided with an amazingly rapid recovery. Such dramatic results are apt to carry us too quickly into adopting this treatment to the exclusion of others.

There is much to recommend the treatment. Improvement is noted almost immediately; there are fewer later complications with a marked decrease in the often lingering infections. There is no progression of the disease after the first treatment, due to the plug's dislodgement from the infected lung. If extreme caution is used in this treatment there is really much to recommend its careful use. I wish to compliment Dr. Riggins on his excellent work in this field, and upon his careful presentation.

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DR. KOBER: It has been my privilege to refer three or four cases of lobar pneumonia to Drs. Holmes and Randolph for pneumothorax treatment. After watching pneumothorax administered, it is extremely difficult for me not to be enthusiastic over the results obtained.

These men are, no doubt, holding back to avoid the enthusiastic faults and errors that often arise over a new treatment. In the case of the small boy referred to by Dr. Randolph, I want to say that the results were astounding. The boy was desperately sick when I was called in and I did not feel that he could live. After pneumothorax was administered the temperature subsided and within 12 to 14 hours it was difficult to keep the child in bed. As this method is tried, I feel it will supplant other treatments. If I had pneumonia tomorrow, I would ask that my lung be collapsed, I feel that faith in the treatment. By compressing the lung, we kill the germ and bring about the crisis within a few days and often hours. By careful work, I again say that I feel this method will supplant other types of treatment. My compliments to Dr. Riggins upon his good work.

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DR. RIGGINS (concluding): The discussions have been most complimentary. I have great faith in the treatment with pneumothorax and am pleased to present our findings to you. Thank you.

# Southwestern Medicine

Printed by THE A. C. TAYLOR PRINTING CO., Phoenix, Arizona  
Published monthly for the Board of Managers of the four constituent societies.

VOL. XIX.

JUNE, 1935

No. 6

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## THE CAUSES OF MALPRACTICE SUITS

Around 20,000 malpractice suits have been filed against physicians in the United States during the last five years. Drs. Halbert G. Stetson and John E. Moran obtained data from liability companies and physicians upon 35,000 suits which they analyzed and concluded that the causes of malpractice suits were: Inopportune remarks by physicians in regard to treatment of cases, animosities and jealousies between physicians, attempts to collect bills, failure in fracture cases to use x-rays, newspaper stories, efforts of cultists, negligence of nurses, alcoholism, failure to use treatment advised by the majority.

The fact that 60 per cent of the suits were the direct result of unfortunate unnecessary remarks by physicians about their confreres and, or animosities and jealousies should cause physicians to pull themselves up short with a determination to at least not talk or in any manner display their ill-tempered emotions; only 20 per cent were counter-suits against suits for collection of bills, and 10 per cent were for failure to use the x-ray in fracture cases.

five children. It is thought that the medical care given this family is average for their stratum. There are the usual colds, measles, pertussis, mumps, broken bones, etc. The bill for medical services during eight years time amounted to \$479.00, averaging \$59.78 a year. This included vaccines for smallpox and immunizations against diphtheria and monthly examinations of the children. The father of this family has made on the average of \$850 a year.

During these same eight years in which \$479 was spent for medical services the family paid \$1676.48 for milk and butter.

This makes an average of \$209.56 per year for milk against \$59.78 for medical attention.

The editor queries if it isn't strange that the Milbank Foundation Fund should not concern itself about arranging for a group scheme of paying for milk for those who much need it. It is evident that the family physician in this case tempered his charges to the income of the wage earner. The editor thinks the milk trust does not supply free milk to the unemployed nor did it temper its charges for milk to what the family could afford to pay.

## DETROIT MEDICAL NEWS TAKES A 'DIG' AT MILBANK FOUNDATION FUND.

A considerable portion of the income which supports the Milbank Foundation Fund comes from the sale of milk. The price of milk in Detroit is said to be the highest of that in any American city. It is important for a family with children to buy milk. It is also important to have medical attention.

The editor cites a family in which there are

## ETHICAL SOLICITATION OF PATIENTS

The Philadelphia County Medical Society has instigated a campaign to have all of its members solicit their children patients to be brought in for immunization against diphtheria. A form letter has been prepared, a supply of which each physician may obtain. It is set forth in the literature and in the letter that the health centers are immunizing not only the children of the indigent but those of the well-



to-do who are presented to them; those who are able to pay should pay the family physician for such treatment; the code of ethics may be so interpreted as to permit such soliciting of patients. It is a matter of duty and interest in public health to do this.

The incidence of diphtheria has been tremendously reduced by immunization treatments but not as much as is possible. The injection treatment for the prevention of diphtheria has been scientifically studied and has been proven effective and safe. Since diphtheria is prone to attack the very youngest of children, all those above the age of six months should be treated.

It would seem to us that the physicians of the Southwest could well afford to propagandize and circularize their patients relative to the immunization treatments. This is a matter for each county society to handle. There can be no objection to it and the program might be facilitated by the officers of each State and County Association.

#### **THE AMERICAN UROLOGICAL ASSOCIATION MEETS IN SAN FRANCISCO.**

The coming meeting of the American Urological Association will be held in the Palace Hotel in San Francisco, June 26-28, 1935. This meeting will be attended by a number of distinguished guests, delegates from foreign countries as well as from America. Dr. David M. Davis of Phoenix will speak on a new method of closing bladder incisions.

#### **THE SECURITY BILL**

The medical profession is directly interested in that part of this bill which establishes a "Social Insurance Board" of three members in the Department of Labor to be appointed by the President. A part of the duty of this board will be to administer funds, to help crippled children, and to improve maternity welfare. This latter venture is merely an enlargement of the old Shepard Towner Act which aroused considerable opposition a few years ago. This board will also have the duty of studying and recommending as to the most effective methods in old age insurance, unemployment compensation, accident and health insurance and subjects related thereto.

The President by all means should be prevailed upon when and if this becomes a law

to give the medical profession representation upon this board. Here is a chance and a duty to write to the President. Doctors of the Southwest, write the President.

#### **DEBATES ON SOCIAL MEDICINE**

The National University Extension Association debate league has selected for debates for the next year the subject: "Resolved: That the several states should enact legislation providing for a system of complete medical service available to all citizens at public expense."

The league is laying plans toward accumulating data for use of the students. It is certain that several hundred thousand students throughout the land will study the subject of socializing medicine and will bring out many points never before given serious thought. It is also certain that millions of our people will listen to discussions with the result that they may acquire a definite crystalization of thought on the subject of socialization of medicine.

#### **ARIZONA'S PRESIDENT-ELECT**



President-elect of the Arizona State Medical Association, Dr. Jesse D. Hamer, is one of the younger physicians of Phoenix.

He was born in Ross County, Ohio, March 28, 1898. He is of Welch and English ancestry. He graduated from Wittenberg College, Springfield, Ohio, in 1922 with an A. B. Degree. His doctor of medicine degree is from Western Reserve, Cleveland, Ohio. He is licensed to practice in Ohio and Arizona.

In 1926 he came to Phoenix as house physician at the Good Samaritan Hospital. He was secretary of the staff of this hospital in 1932 and 1933.

Dr. Hamer has done much in aiding the welfare departments of the city and county. He has been a member of the County Medical Society and the Public Welfare Committee since 1932; he has been chairman of the latter committee during 1933 and 1934.

A few of his many social and business associations are: Rotary club; Arizona club; County, State, and National Medical Societies; Medical and Surgical Association of the Southwest; Associate in American College of Physicians and a member of the Association for the Study of Internal Secretions. Since 1932 he has been

director of Health and Safety of Roosevelt Council of the Boy Scouts and director of the First Aid and Life Saving Services of the local Red Cross.

### COMMITTEE APPOINTMENT

President C. R. K. Swetnam of the Arizona State Medical Association has named his Public Health and Welfare Committee: Drs. W. O. Sweek, Phoenix, Chairman; Meade Clyne, Tucson, and C. E. Yount, Prescott. The rest of his committees apparently remain as of last year.

### AMERICAN CONGRESS OF PHYSICAL THERAPY.

The American Congress of Physical Therapy will hold classes on physical therapy September 5th to 7th. Their regular meeting will be from the 9th to the 12th at the Hotel Kansas Citian, Kansas City, Missouri. Further information can be secured by writing 30 North Michigan Ave., Chicago, Ill.

We haven't room in *SOUTHWESTERN MEDICINE* for poetry, but this effusion is "hot". There are too many words in too many papers for any reader to read.

### ADVICE TO CONTRIBUTORS

If you've got a thought that's happy—

Boil it down.

Make it short and crisp, and snappy—

Boil it down.

When your brain its coin has minted,

Down the page your pen has sprinted,

If you want your effort printed.

Boil it down.

Take out every surplus letter—

Boil it down.

Fewer syllables the better—

Boil it down.

Make your meaning plain—express it,

So we'll know—not merely guess it,

Then, my friend, e'er you address it,

Boil it down.

Cut out all the extra trimmings—

Boil it down.

Skim it well—then skim the skimmings—

Boil it down.

When you're sure 'twould be a sin to

Cut another sentence in two,

Send it on, and we'll begin to—

Boil it down.

—Author Unknown.

### TULANE CENTENNIAL CELEBRATION

This month there is being held the centennial celebration for Tulane University, which has had a full century of achievement in medical and other departments of higher education.

In 1933 a scourge of cholera and yellow fever killed 6000 of the 50,000 of population of New

Orleans. There was such a scarcity of physicians and the need was great and the opportunity for study and teaching at the charity hospital so unusual that three young physicians—Dr. Thomas Hunt, Dr. Warren Stone, and Dr. John M. Harrison who had arrived in New Orleans during the epidemic—organized the Medical College of Louisiana in the latter part of the year 1834. In the year 1847 it was incorporated into the Medical Department of the University of Louisiana which was established with departments of medicine, law, arts, and sciences.

In 1884 Paul Tulane gave more than a million dollars as an endowment and it then became the nucleus of the present Tulane University. Of great interest to medical men is the noted work that Tulane University has done on tropical diseases such as malaria, yellow fever, cholera, beri beri, leprosy, amoebic dysentery, etc. Other branches of medicine have fared well in their research; work done by Dr. Rudolph Matas in vascular surgery has gained international attention.

It is fitting that all medical men should pause for a moment's contemplation of this institution and its splendid accomplishments extending throughout a century.



**BRIGADIER GENERAL J. B. D. IRWIN**

Illustration (received too late) of article in last issue of *SOUTHWESTERN MEDICINE*, "The Fighting Arizona Doctor."



### OBITUARY

Dr. H. L. Tapperman died at the age of 28 in the Cedars of Lebanon Hospital, Los Angeles, California, February 23, 1935.

Dr. Tapperman, a graduate of the University of Michigan, Ann Arbor, Michigan, interned at the Columbia Hospital, Milwaukee, Wisconsin, before going to the Detroit Receiving Hospital, where his health broke. In 1933 he came to Benson, Arizona, to help Dr. Yellott.

Although of very poor health he was greatly admired by the people of Benson for the active part he took in many health organizations and for the many worth while things he did for this city.

Dr. Tapperman was a member of, the Pi Chapter of Phi Lambda and, the American Medical Association.

### NEWS

Dr. H. S. Denninger, Peoria, Arizona, has taken over the practice of the late Dr. John Maxwell Pearson of Glendale. He will probably make his home in Glendale in the near future. He has been named deputy county physician.

Dr. A. L. Gustetter of Nogales, and Mrs. Rose Sylvia of Hollywood, California, were married on Wednesday evening, April 24th, at the Westward Ho hotel, Phoenix. After two days in attendance at the annual meeting of the Arizona State Medical Association, the newly-weds enjoyed a short honeymoon at Boulder Dam, returning to Nogales, to make their home, on April 29th.

Dr. and Mrs. J. H. Woodard entertained the physicians, their ladies and the nurses of Santa Cruz county, in their home at Ruby on Monday night, May 13th. Following a most enjoyable buffet dinner, Mrs. Woodard entertained the physicians' wives at a bridge party, while the physicians and the nurses enjoyed a splendid program especially arranged by Dr. Woodard. Several clinical cases were presented by Dr. Woodard, followed by discussion. Those present and enjoying the hospitality of Dr. and Mrs. Woodard were: Dr. and Mrs. E. C. Houle, Dr. and Mrs. J. S. Gonzales, Dr. and Mrs. C. S. Smith, Dr. and Mrs. M. I. Merritt, Dr. and Mrs. Z. B. Noon, Dr. J. E. Urriologoitia, Dr. M. Martinez, Miss Lydia Potthoff, Mrs. Bert DeVaughan, Miss Montijo, Mrs. A. M. Gillespie, Mr. and Mrs. Duff.

It can be authentically stated at this time that the Sana Cruz County Medical Society will provide another one of the famous' cock-fights at the meeting of the Arizona State Medical Association in Nogales in 1936.

Dr. C. C. Creighton, Flagstaff, Arizona, spoke upon "Some Protozoal Infections" before the natural science class at Arizona State Teachers College during the early spring.

Dr. Henry T. Bailey, Phoenix, Arizona, who has been laid up for several months with illness recently has been able to visit his office.

Dr. S. I. Bloomhardt, Phoenix, Arizona, who

suffered a disabling blow on the head while playing in a polo game a few months ago is able to attend to his practice and seems entirely well.

Dr. Walter Brazie, Kingman, Arizona, has been chosen delegate to the Rotary International convention in Mexico City, which meets this summer.

Dr. and Mrs. Reed Shupe, Phoenix, Arizona, are the parents of a daughter born during March.

Dr. L. A. W. Burtch, Phoenix, has moved his offices from the Professional building to the Security building.

Dr. F. M. Kilgard, Phoenix, moved his offices from the Professional building to the Physicians' building.

Dr. A. J. McIntyre of Phoenix, went to San Diego, California, the latter part of May to attend the Shrine convention and to make arrangements for accommodations for the Arizona Shrine delegates while staying in San Diego.

Dr. C. W. Sechrist is building a model hospital north of Flagstaff, Arizona. It will be 40 by 154 feet with a "T" extension 35 by 40 feet; construction will be of Malachi rock, fireproof, and with accommodations for 25 patients. Dr. Sechrist now operates the hospital, which was originally built for sawmill employees and which had a capacity for 14 patients.

Governor Moeur of Arizona has named his board of medical examiners as follows: Dr. J. H. Patterson, of Phoenix, secretary for the term of six years; Dr. W. G. Schultz, of Tucson, for five years; Dr. I. E. Huffman, Tucson, for four years; and Dr. J. E. Bacon, of Miami, for three years; an osteopath was named for a two-year period. The appointments are in compliance with the amended law which provides for a board of five members of which four shall be graduates of medical colleges and one a graduate of a recognized school of osteopathy.

Dr. A. C. Carlson, Jerome, was in Phoenix, for a visit over the week-end the last of May.

Dr. Alvin Kirmse of Tucson, is the chef-de-gare of the Tucson voiture of the Forty-and-Eight.

### MINUTES OF MEETING EL PASO COUNTY MEDICAL SOCIETY

The El Paso County Medical Society met Monday evening, April 22, 1935, at the Hotel Dieu Nurses' Home. Meeting was presided over by Dr. B. F. Stevens, president.

Dr. Stevens opened the meeting by introducing Dr. Hall G. Holder of San Diego, California. Dr. Holder presented a detailed paper on the operation of the San Diego Central Medical Service Plan. At the close of Dr. Holder's paper visitors were asked to leave and the discussion was opened to the members of the Society, the following members participating in the discussion: Drs. McCamant, R. B. Homan, J. A. Rawlings, Will Rogers, Egbert, Ralph H. Homan, Paul Gallagher, George Turner, Bob Homan, S. H. Newman, S. D. Swope, and F. D. Garrett.

At the conclusion of this discussion Dr. Stephen A. Schuster presented a paper, to be read at the State Medical Meeting in Dallas, on "Remarks on Nasal Tuberculosis." This paper was discussed by Drs. Von Almen and Vandevere, and discussion closed by Dr. Schuster.

Motion made and seconded that Dr. Rawling's paper be postponed until the next meeting carried.

Dr. Leslie Smith made an announcement about the Pre-School Round-Up and stated that they wanted the Medical Society to furnish men to do general examinations on pre-school age children. Dr. McCamant stated that the purpose was to make a check-up on every child who would enter school either in September, or in the middle of January next year. He stated that they would make just examinations—no treatment and that there would be one central location and that they would have two or three days to do the work.

Dr. Miller, a member of the Economic Committee, made a motion that the removal of the sewage be turned over to the County Health Department. Motion seconded by Dr. Rennick, and passed.

Motion was made by Dr. Gallagher and seconded by Dr. McCamant that a vote of thanks be given to Dr. Holder for coming to El Paso. Motion passed.

Meeting adjourned at 10 o'clock.

May 13, 1935.

Meeting was called to order at 8:00 p. m. by the secretary. Dr. R. B. Homan was selected president protem in the absence of the president and the vice-president.

The following clinical cases were presented briefly:

Dr. F. D. Garrett—a case of syphilis with gastric symptoms and hemoptysis.

Dr. Long—pulmonary hemorrhage with bilateral tuberculosis and use of collapse therapy.

Dr. Murphy—a case presenting physical signs of ovarian cyst which disappeared following a sudden passage of a large amount of fluid.

Dr. Dutton—a second case of eczema apparently due to drinking water.

Dr. Waite—a case of rupture of the liver induced by convulsions of eclampsia.

Dr. Ebell—a case of sterility corrected by use of hormones of pituitary.

Dr. Awe—a case of arthritis, backache and cramps due to retention of menstrual blood caused by stenosis of cervix—all following artificial menopause and then use of antituitrins and vaccines.

Dr. J. Mott Rawlings read a paper entitled "possible Significance of B. Pertussis in Some Cases of Asthma." Discussed by Drs. Dutton, Awe, Cummins and J. A. Rawlings.

Dr. Clay A. Gwinn read a paper entitled "External Otitis." Discussed by Drs. Franklin, J. A. Rawlings, Gallagher, Ebell, Mott, Rawlings, Awe, Dutton and Gwinn.

## GOOD CLINICAL RECORDS

(Stressing the Importance of Convincing the Physician Himself of the Value of Good Records.)

BETTY L. MURRAY,

Record Librarian, Good Samaritan Hospital.  
Phoenix, Ariz.

In order to assure good clinical records, a well developed organization is essential. The organization must not be limited to departmental heads; each and every member of the hospital personnel can, by accuracy in recording details, and cooperating with the record librarian, do his part to improve the records. The nursing personnel can see that the bedside notes are adequate—so that they actually present a clear picture of the case; the record librarian can check up omissions and call the erring members' attention to their failures to record vital information; and the members of the record committee, when reviewing their colleagues' charts in open discussion at staff meetings, either by praise or criticism, can inspire them to better work—or shame them into it.

Upon the cooperation of the physician himself depends the quality of the records attained. Unless he is vitally interested in maintaining a high standard of record on his own individual cases, we cannot hope to get records of value, regardless of how conscientious and efficient the organization behind the record department may be.

Without the physician's voluntary cooperation, it is a discouraging and hopeless task. It is earnestly hoped that some old idea attractively presented, or some new idea may be advanced which will have the power to stimulate the interest of the physician, and make him enthusiastic in doing his part toward reaching the desired goal.

Each physician should honestly endeavor to have his case records resemble the perfect record; namely: A picture of the patient's complaints, physical findings, treatment and progress from the hour of his admission to the hour of discharge. The doctor when reminded by the record librarian or the nurse in charge of his case, of his failure to note important data, rather than show resentment, should welcome the criticism, and gracefully cooperate.

Is it not reasonable that when a physician dictates a record, merely because he has been cajoled or pursued until he weakens from sheer loss of resistance, that in the majority of the cases the information given is not the most valuable?

Any record librarian who possesses imagination and ingenuity can, by various tactics, succeed in getting each and every doctor to dictate findings or fill in data; but if this doctor does not have a real belief of the value of records, and sees no reason for it all—merely conceding by coercion—what price record?

It seems that if we wish to make progress in raising the standard of our records, it is advan-



tageous to have the individuals who denounce records rules as a lot of red tape, given the opportunity to voice their grievances—not behind closed doors in groups of two or three, bemoaning their irritation in being compelled to waste their valuable time in complying with standardized hospital regulations, but in open discussion. After all, the American College of Surgeons is a protection to the physician as well as the hospital, and has apparently worked up this record schedule with a definite purpose in mind. That some of the physicians, especially a number of the older men, cannot, or will not recognize its advantage, can only be due to their failure to understand and appreciate its motive.

A friendly feeling between the College and the physician is essential. Of paramount importance is the doctor's concession that records regulations, as outlined by the College, are not only valuable to the hospital, but to the physicians. So we must aim to get the physician's cooperation, and in order to get whole-hearted cooperation, he must have genuine realization that good records are of untold value to the medical profession in general, and of greater advantage to himself. I am looking to the physicians to say something which will help convince those, who still doubt, of this fact.

### PUBLIC HEALTH NOTES

J. ROSSLYN EARP, Dr. P. H.

(Director, New Mexico State Bureau of Public Health)

**New Mexico Public Health Association:** All records were broken at the annual meeting. When the audience assembled to hear Dr. Walter H. Brown speak on "Public Health—a Problem in Distribution" it was so large that it had to be removed to another building. The new movie film *Malaria Control in New Mexico* was shown on two occasions. On the first day of the meeting it was seen by 162 and on the second day by 185. A large audience also heard Dr. W. W. Peter describe his experiences during 15 years of broadcasting health in China. His talk was illustrated by exceptionally beautiful, colored, lantern slides. Miss Sally Lucas Jean read a most stimulating paper on Health Publicity. Mr. Lewis H. Carris, director of the National Society for the Prevention of Blindness offered most practical suggestions as to a program for visual conservation in New Mexico. Dr. Guy S. Millberry, dean of the School of Dentistry of the University of California and chairman of the Good Teeth Council, discussed the prevention of dental diseases. Dr. K. E. Miller, of the U. S. Public Health Service, spoke on Records and Records Keeping, and Miss Evelyn K. Davis, of the National Organization for Public Health Nursing, on the Importance of Lay Groups in Public Health Work. A lively round table discussion was held on the new health district act.

Dr. Eugene P. Sims presided over the sessions

this year. Dr. E. F. McIntyre, health officer of Santa Fe county, was elected president for the ensuing year. Doctor McIntyre, who made a remarkable record in 1934 by reducing the infant mortality in Santa Fe by 44 per cent, is at present taking a post graduate course in public health at Johns Hopkins University. Mrs. Esther Schaubel was elected vice president and Mr. Paul S. Fox, secretary-treasurer. The meeting next year will be with the New Mexico Medical Society at whatever date and place the Society decides to convene.

**Value of Milk:** Question time in the British House of Commons often provides little tid-bits of official news. Thus on April 2nd last Mr. Cove asked the Minister of Health for news concerning a proposed inquiry into the nutritional value of milk. It is perhaps significant that the answer came from the Minister of Agriculture who announced that the Milk Marketing Board for England and Wales and the Scottish Milk Marketing Board had put before the Secretary for Scotland and himself a "scheme" which is to affect 8,000 school children over a period of twelve months.

Without having seen the scheme it would be unjust to condemn it. One wonders, though, what pediatricians think of this statistical method of studying the nutritional effect of milk on school children. No doubt amongst the 8,000 youngsters there will be some who are ill fed. Will any attempt be made to differentiate between those who are undernourished because they are in need of more food or a better balanced diet and those who are undernourished because they are suffering from toxemia, inadequate rest, etc? Or is this one of those naive experiments in which 4,000 children have extra milk and 4,000 do not and the first 4,000 put on more weight (on the average) than the second 4,000 will benefit from an extra ration of milk? Time will tell. In the meanwhile one notes the minister's view that the scheme "will also have an important bearing upon the problem of increasing the demands for liquid milk in this country."

1. The Lancet i:838 (April 6) 1935.

### ABDOMINAL ACTINOMYCOSIS

(A Case Report)

B. F. STEVENS, M. D.  
El Paso, Texas.

A male office worker, age 31, single, with previous history negative, was operated upon in Phoenix, Arizona, Jan., 1929, for a ruptured appendix, which required drainage. He left the hospital in two weeks with a healed wound and was back at work in one month; in November, 1929, the abdomen was reopened because of pain, diagnosed as due to postoperative adhesions. No report of the pathology found is available, but the wound healed poorly, leaving several sinuses.

In 1930, he was operated upon again—several

sinuses being excised from the abdominal wall and two omental tumors removed. The wound healed poorly, leaving several sinuses. The diagnosis at that time was a low grade infection of undetermined origin.

In 1934, he was again operated upon—in El Paso—for suspected liver abscesses none was found. The wound healed by primary intention. Two sinuses in the lower abdominal wall and right chest were not involved in the operation.

Six weeks after his last operation, he had periods up to three months of chills, fever and sweats. These would gradually subside and then he would put on weight. A number of Wassermann tests were negative and repeated tests for malaria were negative. He had no cough nor expectoration.

When I first saw him in 1931, because of the various fistulas, I made a diagnosis of actinomycosis, and put him on increasing doses of K. I. He was also given potassium iodide intravenously, and a month before his death two doses of Lugol's solution diluted of four cc. each were given intravenously in 60 cc. of water. They caused a thrombosis of the veins below the site where they were injected, so were not repeated. During the last few months of his illness the liver was enlarged to several times its normal size. This, together with the pyemic symptoms and pain over the hepatic area, made diagnosis of liver abscess probable.

Autopsy (confined to chest and abdomen): Body was greatly emaciated; there were four superficial fistulae—one on the right side of the chest wall over the fifth rib, laterally, one each in the right and left inguinal regions, and one in the right groin. None of these communicated with either the abdomen or chest.

Thorax. No free fluid. Right lung was adherent posteriorly. Upper lobes of both lungs on lateral and posterior surfaces contained many indurated nodules, varying from three-eighths to one inch in diameter, which did not communicate with the bronchi. Palpation gave the feel of a carcinoma. When excised thick, light greenish yellow pus exuded. There were no signs of tuberculosis.

Abdomen contained about 600 cc. of straw colored clear fluid. Adhesions existed between the upper surface of the liver and the diaphragm. No signs existed of fistulous openings. The spleen was not enlarged. The liver was nearly three times its normal size and of a gray color. On incising through the middle of the right lobe, a honeycomb series of abscesses was disclosed, about three by four inches in diameter. This area was greatly indurated and devoid of liver tissue. The abscesses varied from three-eighths to one inch in diameter.

Actinomycosis of the lungs and liver with superficial non-communicating sinuses in the chest and abdominal walls.

Summary: This man evidently originally had actinomycosis involving the cecum and appendix—the liver and lungs being later infected from a

blood stream infection. During the varying periods in the four years he was under my care, he received large doses of K. I., both by mouth and intravenously, without apparent improvement. He would not submit to further operative treatment on the sinuses after being opened up three times in Arizona and California. Because of the early pyemic symptoms, the liver was early infected, probably in the 10 months interval between the first and second operation.

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### MYOMA OF COLON

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H. H. VARNER, M. D.

and

J. LEIGHTON GREEN, Jr., M. D.  
El Paso, Texas.

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(Read before the Hotel Dieux Staff, Feb., 1935)

Benign tumors of the colon probably occur more often than generally thought. Buie and Swan<sup>1</sup> reported 52 benign colonic growths in patients examined at the Mayo Clinic (from 1905 to 1925). Of these only five cases were adenomyomata, and one was classified as fibromyoma. The adenomyomata occurred in women. Microscopically, their structure resembled endometrial glands and stroma. The one case of fibromyoma was not described. The other benign tumors of this group Buie and Swan classified as follows: Adenoma, 19; adenofibroma, two; polyp, 13; lipoma, eight, cystic tumor, two; fibroma and angioma, one each.

Scott<sup>2</sup> says that leiomyomata occur almost everywhere smooth muscle tissue is found. They have been found from the esophagus to the rectum. He found seven cases in the literature and reported another, in which myomata of the intestinal tract had undergone malignant degeneration. Such a malignancy he named myoma malignum. Scott stressed the necessity of removing benign myomata, even though they produced no symptoms, because of the danger of malignancy.

Canonne<sup>3</sup> reported a case of generalized myomatosis of the large intestine, treated by colectomy. He emphasized the clinical, radiological, and gross resemblance of these tumors to carcinoma and advised radical excision.

Griffiths<sup>4</sup> resected a leiomyoma from the transverse colon. The tumor arose from the circular muscular coat of the bowel, surrounded the colon, and showed no evidence of malignant change.

**Case Report:** A white man, 44, came under observation July 3, 1933. He had been suffering for about 10 days with cramping abdominal pain, nausea, and vomiting. Immediately after ingestion of food, he said, pain would recur, with distention of the abdomen. Constipation had become progressively worse, over a period of months, until at this time it required large doses of laxative to evacuate the bowels. Loose stools resulted with temporary relief from distention and pain. No blood had been observed in the stools. He be-



# LATENT AVITAMINOSIS: THE "TWILIGHT ZONE" OF NUTRITION

● Each passing year discloses that the science of medicine has made further application of the results of biochemical research. The time will come when the physician will rarely see examples of extreme human avitaminosis. The high vitamin requirements of infancy and childhood are clearly recognized; they are fulfilled by proper supplements to the diet. The cooperation of intelligent parents will certainly aid in decreasing the incidence of deficiency diseases of childhood.

The matter of the adult vitamin requirement has also received attention; the average individual understands his dietary needs, in a general way. As a result, if the pellagrin be excepted, the practitioner today seldom encounters *extreme* vitamin deprivation in his patients. The fight against vitamin deficiencies is changing in aspect; the problem now is to combat *suboptimal* rather than *subminimal* vitamin intake.

In 1920, Hess described the condition of subacute or "latent scurvy". Evidence since accumulated indicates that similar conditions may exist in respect to the other essential vitamins. This latent avitaminosis has been aptly termed the "twilight zone" of good nutrition (1).

Latent avitaminosis is a state of ill-health difficult to define; it may be characterized

by a vague, indefinite sense of ill-being; it is a condition, however, which responds to proper diet under medical supervision; and among the most valuable foods available for diets in cases of latent avitaminosis are canned foods. The literature is replete with articles relating to the vitamin values of canned foods; several of these are particularly pertinent to the present discussion (2).

Two species of laboratory animals, the albino rat and the guinea pig, were carried through ten and eight generations, respectively, on a diet which consisted entirely of combinations of canned foods. No additional vitamin supplements, such as are commonly employed in the breeding or rearing of such animals, were necessary. The varied canned food diet supplied all factors, vitamin or otherwise, for the successful fulfillment of the life cycle, namely growth, maintenance, reproduction and lactation.

The significance of these findings is obvious. The physician may prescribe a diet containing a wide variety of canned foods with the confidence that the combination will supply essential vitamins in amounts consistent with the amounts of the vitamins present in the raw materials from which the canned foods were prepared. Whether additional supplementation with specific vitamin-rich foods or concentrates is indicated, is properly a matter for medical determination.

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(1) J. Amer. Med. Assn. 101, 127 (1933)

(2) Ind. Eng. Chem. 23, 1064 (1931)  
Ind. Eng. Chem. 26, 758 (1934)

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lieved his weight had decreased by six to eight pounds in two weeks; he felt very weak.

He gave a history of being hospitalized for three days in August, 1931, for an attack of abdominal pain and distention. The hospital record showed that during this attack his temperature had reached 100.8 degrees. The diagnosis had been gastro-enteritis. Following this had been recurrent attack of abdominal pain and a sensation of bloating in the abdomen.

Previous history included an attack of typhoid fever, two attacks of pneumonia, and occasional trouble with bronchial asthma. There was no family history of cancer, tuberculosis, or blood dyscrasia.

Examination revealed a thin white man, apparently acutely ill. His left eye showed a scar from iridectomy. The only other definite abnormalities were abdominal. The upper half of the abdomen was tympanitic and moderately distended. On deep pressure in the left iliac region, just above the center Poupart's ligament, could be detected an indefinite mass. On bimanual examination, with one finger in the rectum, this could be defined as a firm, immovable, slightly-tender tumor, about the size of a large orange, occupying the left side of the pelvis. The prostate was small and soft, and was not connected with the mass. No enlarged glands could be detected in the iliac regions.

A barium enema passed to the lower portion of the sigmoid colon, where marked spasm was encountered. By barium meal, at the end of 14 and 18 hours, the colon was shown fairly well outlined down to the midportion of the sigmoid. This area could not be visualized. The radiologist's conclusion was: "The lower third of the sigmoid apparently shows partial obstruction and appears greatly inflamed. While malignancy is not ruled out, this is more suggestive of an inflammatory diverticulitis or amebic infection."

On July 8th, under ether anesthesia, exploration was done through a left rectus incision. Omentum and loops of ileum were found adherent to a rounded mass which involved the entire circumference of the sigmoid colon just above the pelvic brim. The tumor was slightly movable. A tentative diagnosis of carcinoma was made but no metastases could be palpated and no enlarged nodes. Because of the symptoms of obstruction, colostomy was done, bringing the upper portion of the sigmoid out through a stab wound in the left ilium region.

Infection developed in the central incision and two months elapsed before resection could be done. During this interval, autogenous vaccine from the wound discharge was prepared and administered. Careful preparation for resection was made by irrigating the rectum and lower sigmoid with mercurochrome for 48 hours before the second operation.

On Sept. 21st, under spinal analgesia, through

the same left rectus incision, the sigmoid tumor was mobilized and removed. End-to-end anastomosis was done. Post-operative convalescence was uneventful. On Oct. 14th, bowel movements having already resumed the normal course, the colostomy was closed. A small sinus at the colostomy site later had to be excised; the patient returned to work in January, 1934. At the present writing (February, 1935) he is in good health, has gained weight, and has no gastro-intestinal symptoms.

**Pathological Report:** A section of the colon measuring 10 cm. was examined. The wall of the colon was greatly thickened, and with adhesions to the peritoneal coat, formed a tumor six cm. in diameter. The thickening appeared to be entirely in the muscular coat and was uniformly distributed throughout the circumference. The mucosa appeared normal; the lumen was constricted to about half the normal size.

Section showed a markedly-thickened muscular coat, the cells being hypertrophied muscle cells. In places islands of round cell infiltration occurred, especially under the serosa. The mucosa appeared normal.

**Diagnosis:** Myoma of the intestinal wall.

1. Buie, L. A., and Swan, Theodore; Benign Tumors of the Colon, S. C. N. A., Aug., 1929, 893-910.
2. Scott, C. R.: Myoma Malignum Particularly Other than Uterine, Northwest Medicine, Dec., 1923.
3. Canonne, N. M.: Un cas de myomatose generalisee du gros intestin, Revue de Chirurgie, (Dec.) 1930, X, 391.
4. Griffiths, G. J.: Myoma of Transverse Colon, Brit. Med. J., (Mar. 31) 1934, No. 3821, 579.

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## BOOK REVIEWS

**THE MEDICAL AND ORTHOPAEDIC MANAGEMENT OF CHRONIC ARTHRITIS:** by Ralph Pemberton, M.S., M.D., F.A.C.S., Professor of Medicine Graduate School of Medicine, University of Pennsylvania; Chairman, American Committee for the Control of Rheumatism (Ligue Internationale contre le Rhumatisme); Member, Council on Physical Therapy of the American Medical Association; Physician to the Abington Memorial and the Bryn Mawr Hospitals; Consultant to the Philadelphia Orthopaedic Hospital and Infirmary for Nervous Diseases and to the Chester County Hospital; Author of "Arthritis and Rheumatoid Conditions, Their Nature and Treatment," 1929; and Robert B. Osgood, A.B., M.D., F.A.C.S., John Ball and Buckminster Brown, Professor Emeritus of Orthopaedic Surgery, Harvard Medical School; Member, American Committee for the Control of Rheumatism (Ligue Internationale contre le Rhumatisme); Member, Council on Physical Therapy of the American Medical Association; Consulting Surgeon, Boston Children's Hospital; Member, Board of Consultants Massachusetts General Hospital; Member, American International, British (Hon.), Italian (Hon.), Scandinavian (Hon.), Belgian (Cor.), Orthopaedic Associations; The Mac Millan Company; New York; 1934; \$5.00.

The authors have struck a happy note in writing this book. They regard chronic arthritis merely as one of the many chronic diseases and that all of them have more or less the same etiologic factors. In chronic medicine it is necessary to take into consideration the hereditary factors believing that the results of the hereditary factors when given careful attention may be controlled. After these come so many factors, one about equal in importance to another, that it is difficult to tell how many of them will be found in any one patient.

They divide chronic arthritis into two parts, the trophic and hypertrophic. The trophic would seem to be an extension of ordinary rheumatic fever. The two primary causes in the minds of the authors seem to be bacteria—focal infections—and gastrointestinal abnormalities. They mention allergy but do not go into detail about it. They describe, however, a great many symptoms and developments which the allergist will recognize as allergic. They find gastro-intestinal abnormalities such as kinking, redundancy, etc., common in arthritis. They believe that the essential factors in treatment consist in removing focal infections and giving limited diets—especially reducing the carbohydrate intake together with liberally supplying vitamins—especially vitamin B.

The authors say that it is difficult to name categorically the most important measures to be entertained in the treatment of arthritis. Quoting: "What is the most important part of a ship? What chiefly determining its arrival in Europe? Obviously, there is no single predominating factor in such a complex and, by the same token, there is none in the therapeutic congerie of factors in the considerations outlined above. If the pilgrim on the road to arthritic crippledom would tell his therapeutic beads to the end that he be saved, he must finger them all and beware of worshipping unduly any alleged patron saint, or his prayers will be of small avail."

Everyone interested in chronic medicine, especially in arthritis should have this book. We regard this as an outstanding book of the year.

**ILLUSTRATIVE ELECTROCARDIOGRAPHY:** by Joseph H. Bainton, A.B., M.D., Attending Physician and chief of the Cardiac Clinic, Morrisania City Hospital, New York City, and Consulting Physi-

cian, St. John's Long Island Hospital; and Julius Burstein, A.B., M.D., Associate Electrocardiographer, Morrisania Hospital, New York City; D. Appleton-Century Company, Inc.; New York, London.

This is a book of 238 pages, odd-shaped, with the pages wider than they are high. For the most part, illustrations occupy the right hand page with a description thereof on the left. A great variety of electrocardiograms is presented with as thorough descriptions of them as apparently is possible with our present state of knowledge.

The book comprises a post-graduate course in Electrocardiography. The text is terse and clear. The reproduction of the illustrations are excellent. It would seem that most physicians will wish to have and should have this book upon their desks for ready reference.

**PRACTICAL ENDOCRINOLOGY, SYMPTOMS AND TREATMENT;** by Max A. Goldzieher, M.D. Endocrinologist, Gouverneur Hospital; Chief of Endocrine Clinic, Gouverneur and Brooklyn Women's Hospitals; Consultant Pathologist, Beth Moses, Crown Heights and Kingston Avenue Hospitals, Brooklyn, N. Y.; Former Professor of Pathology, Royal Hungarian University, Budapest; Illustrated; D. Appleton-Century Company, Inc., New York, London.

The author has been making a specialty of endocrinology for the past 25 years. He has written this text for the general practitioners. A short concise picture of the pathology of the endocrines is given. The difficulty is in diagnosis and he endeavors to instruct the general practitioner how to tell which glands are at fault and what the best course of treatment would likely be. The text is well written, easily read and would seem to be thoroughly authentic. The book is highly recommended.

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### ADVANCES IN OVARIAN THERAPY

A gynecologist, whose name is known from coast to coast, recently commented in the Journal of the American Medical Association (Feb. 23rd) about the cost of ovarian therapy: "It is greatly regretted," he wrote, "that the American products have not been available at prices that justify their preference or at least their being on a parity with the imported material."

Physicians, who have read this statement, will be interested in the announcement from the Squibb Laboratories that the potency of Amniotin—a physiologically tested preparation of the ovarian follicular hormone, has been increased three-fold and the cost per unit has been reduced to about one-tenth of its former price. For hypodermic administration, Amniotin in Oil is now distributed in 1 cc. size ampuls, containing 8000 and 2000 International Units per cc.

Amniotin Capsules and Pessaries (vaginal suppositories) now contain 1000 and 2000 International Units, respectively. The price of these packages is now so low as to compare favorably with the cost of insulin.

These new high-potency preparations should make ovarian hormone (estrin) therapy eminently more satisfactory. Amniotin is indicated in the treatment of menopausal symptoms, involutional melancholia, gonorrheal vaginitis in children, senile vaginitis, breast hyperplasia (lobular type as-

sociated with bleeding), selected cases of frigidity, and migraine of pituitary origin.

### INFANT FEEDING

Should mothers be given medical advice by neighbors manufacturers and other meddlers, gratuitously, or should the problem of infant feeding be kept where it belongs—in the hands of the medical profession is a question asked by Mead Johnson & Company. They state that they are and always have been definitely on the side of private medical practice, and this is why they refuse to advertise "complete foods" which "simplify" infant feeding. They contend that cow's milk, water and carbohydrate mixtures is the one system of infant feeding that consistently, for three decades, has received universal pediatric recognition; it offers an adjustable formula for meeting the changing requirements of the individual baby as it progresses; of all carbohydrates available, no carbohydrate employed in infant feeding enjoys so rich and enduring a background of authoritative clinical experience as dextri-maltose. They believe that "babies supervised by physicians are better."

An instructive booklet on food values and nutrition has been prepared, covering particularly the newer knowledge of vitamins and mineral metabolism.

Charts showing the relative content of vitamins, calcium, phosphorus, and total caloric value of the more common foods are presented.

Though the booklet is small in size, it forms a handy reference for the busy practitioner. The book may be secured without cost on request, from R. B. Davis Company, Hoboken, N. J.



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## The "Continental" Breakfast is not suitable for a growing child

IN far too many homes, a breakfast of a roll and a cup of coffee is the fare for children as well as adults. Woefully deficient in vitamins and minerals, such a meal furnishes little more than a small amount of calories. A dish of Pablum and milk, however, is just as easily prepared as a "continental breakfast," but furnishes a variety of minerals (calcium, phosphorus, iron, and copper) and vitamins (A, B, G, and E) not found so abundantly in any other cereal or breadstuff.

The addition of a glass of orange juice and one Mead's Capsule of Viosterol in Halibut Liver Oil can easily build up this simple breakfast into a nourishing meal for the children of the family as well as the adult members. It is within the physician's province to inquire into and advise upon such matters, especially since Mead Products are never advertised to the public. *Servamus Fidem*, "We Are Keeping the Faith."

Pablum (Mead's Cereal pre-cooked) is a palatable cereal enriched with vitamin- and mineral-containing foods, consisting of wheatmeal, oatmeal, cornmeal, wheat embryo, alfalfa leaf, beef bone, brewers' yeast, iron salt, sodium chloride.





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*You smiled and said, "They do taste better"  
And I replied, "They're milder, too."  
Those words just fit them to the letter.  
You know—I know—They're true.*

*And now we're furnishing a cottage  
Where we'll be happy by and by.  
Because the night we met, you held that cigarette.  
You know—I know—THEY SATISFY.*

*Chesterfield*



# SOUTHWESTERN MEDICINE

(REGISTERED U. S. PATENT OFFICE)

VOL. XIX.

JULY, 1935

No. 7

OFFICIAL ORGAN  
of the  
NEW MEXICO MEDICAL SOCIETY  
ARIZONA STATE MEDICAL ASSOCIATION  
EL PASO COUNTY (TEXAS) MEDICAL SOCIETY  
THE MEDICAL AND SURGICAL ASSOCIATION  
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FOR TABLE OF CONTENTS—SEE ADVERTISING SECTION PAGE 1

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# VITAMIN STABILITY DURING CANNING

● For over twenty years, intensive studies have been made of the stabilities of the vitamins under various conditions and treatments. Data accumulated indicate that certain vitamins contained in foods may, under specific conditions, be sensitive to oxygen in the presence of heat, or to heat or oxygen alone (1).

Broad details concerning vitamin stabilities are now general knowledge. The basic principle of commercial canning, namely heat sterilization of foods in sealed containers, is also generally known. As a consequence, there has been a tendency in some quarters to regard canned foods as deficient in certain, if not all, vitamins originally present in the raw material because of the conditions to which they were subjected during the canning procedures. Such a concept is not consistent with the established facts.

In future issues it is our intention to review the vitamin values of specific canned foods, as well as other nutritional virtues which they may possess. At this time we should like briefly to survey the matter of the stability of the most widely distributed vitamins during the canning procedure:

In general, vitamin A is not affected by commercial canning. This also appears true of vitamin C, as judged by present bio-assay methods for this complex dietary factor.

The stability of vitamin B<sub>1</sub> is dependent not only upon the heat treatment accorded it, but also upon the natural acidity of the food in which it is contained. In the more acid foods there is practically no loss of the vitamin during canning; in the less acid foods, which require longer and higher sterilization times and temperatures, the degree of retention is not as high.

Vitamin C is the most labile of all the vitamins; it is especially subject to destruction by open pan methods of cooking which permit free contact with atmospheric oxygen. In canning, however, the food is protected to a greater degree from contact with oxygen in the presence of heat; consequently the antiscorbutic factor is well retained in commercially canned foods.

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A fuller discussion of vitamin stabilities during canning procedures is not possible here. For further reading a recent publication dealing more in detail with this important subject is recommended (2).

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(1) The Vitamins, Sherman and Smith, The Chemical Catalog Co., New York, 1931.

The Vitamins; Browning, Bailliere, Tindall and Cox, London, 1931.

Vitamins, A Survey of Present Knowledge, Medical Research Council, H. M. Stationery Office, London, 1932.

(2) Ind. Eng. Chem. 24, 650 (1932)

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# Southwestern Medicine

PUBLISHED MONTHLY

VOL. XIX.

JULY, 1935

No. 7

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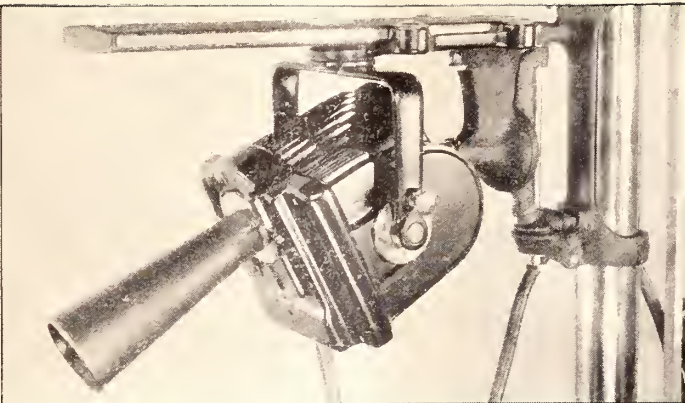
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The most dangerous thing about appendicitis.

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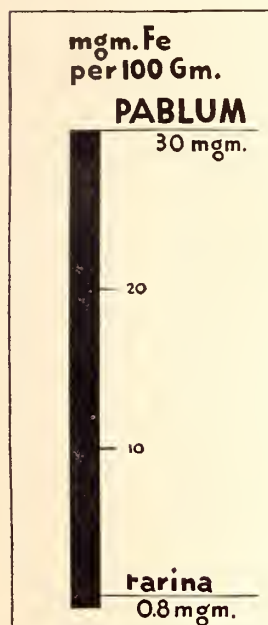
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Requiring no further cooking, Pablum is especially valuable during the healing stage of ulcer when the patient is back at work but still requires frequent meals. Pablum can be prepared quickly and conveniently at the office or shop simply by adding milk or cream and salt and sugar to taste. Pablum has the added advantage that it can be prepared in many varied ways—in muffins, mush, puddings, junket, etc. Further, Pablum is so thoroughly cooked that its cereal-starch has been shown to be more quickly digested *in vitro* than that of farina, oatmeal, cornmeal, or whole wheat cooked four hours in a double boiler (Ross and Burrill).

*Pablum consists of wheatmeal, oatmeal, cornmeal, wheat embryo, alfalfa, yeast, beef bone, iron salt and sodium chloride.*

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VOL. XIX.

JULY, 1935

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## PRESIDENT'S ADDRESS

C. W. GERBER, M. D.,  
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\* Fifty-third Annual Session, New Mexico, Medical Society, Albuquerque, N. M., May 23-25, 1935.

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Governed by ideals and traditions, the medical profession has never failed to meet any emergency arising when it saw it or when it was called upon. Are we in danger of having these impelling impulses traded upon? Are we going to remain passive and depend upon benevolence from whatever source that will to give us our place in the sun, or are we going to create our own place?

In the matter of medical relief of the indigent we should resist any action on the part of lay people to attempt to determine whether or not a sick person is to receive medical relief, when he should receive it, and to what extent. Only a person with medical experience is able to decide these questions, and to have to tolerate any other procedure materially degrades medical relief and does not give the sick person adequate and necessary aid. This very

often tends to imperil the life or the future health of the individual.

A physician, accepting employment under such adverse conditions, is unable to render reasonably necessary and humane aid to his patient and is unfair to himself, unless as undoubtedly frequently happens the physician renders the necessary aid regardless of lack of authority with the result of financial loss to himself. The question of what a physician's legal obligation is, under these adverse conditions in respect to an "implied contract", may yet require a decision.

The medical profession from the beginning has given unstintingly of its ability, substance, and time to the relief of the indigent, governed solely by its ideals and traditions, relieving the Government (Federal, State or Local) of its responsibilities to its own financial loss. Even under the present relief system, whose very basis of existence is the relief of distress, the profession is still expected and compelled to render a considerable portion of medical relief without compensation. This was not intended to be; on the contrary, adequate relief was to be extended to all indigent. How long is this imposition to continue and we to carry a burden rightfully an obligation of the Government or of its subdivisions? The passage of time and the changing conditions demand that we cast off this long-worn yoke.

The profession should also resist any tendency to have medical services evaluated by lay persons. Our services cannot be measured by any commercial rule of thumb—the only basis from which the layman's mind could operate in this respect. No attempt to put a commercial value on medical service has ever succeeded.

No other professional or commercial group has been asked to make, or has acquiesced to the monetary sacrifice in their part of the relief scheme that the medical group has. Full

market price is being paid the trader for commodities and supplies issued the unemployed and the sick, assuring him of his full quota of profit, while the medical group is induced to accept, on the plea of an existing emergency, compensation much below its long prevalent fee schedule.

Conditions of practice under adverse circumstances soon become intolerable. In order to prevent this situation from arising, the profession of the state should, for both the upholding of competent and adequate medical relief and for its own comfort and welfare, work out an acceptable plan consistent with its ideals and traditions, and submit it to all relief agencies of whatever nature or type operating, as the only conditions under which the profession can accept employment.

A movement of this nature by this society would not be an isolated action. Other state societies or their components having had disagreeable experiences, have already formulated and put into force such plans with considerable success.

Then, there exists that large group—the backbone of our citizenry—the middle class—those of moderate and low income, unprovided for. This group is seldom able to meet or to partly meet the expense of prolonged illness or hospitalization, when suddenly confronted with it. Attuned to a scale of living, demanding as necessities material things considered and never attained, by people of the same class in foreign countries, as luxuries, they demand medical service and its auxiliaries far beyond the expectations or desires of those living in foreign lands.

All development in the United States, based on our Constitution, has operated to produce the highest possible type of social advantage, and you can not blame John Citizen for wanting it. But it has been growing beyond his ability to pay for it, particularly, that part with which we are concerned. The medical necessity of a family for a year is always of an uncertain and unknown quantity, and consequently not taken into consideration in allocating the family income. When such a necessity suddenly swoops down upon a family, it is unprepared to meet it; but the grocer's bill, the automobile and radio installments must be allocated from the income and must be met. Therefore the uncertain item, that of medical

expense, suddenly thrust upon a family is left to haphazard chance, squeezed out of this or that part of the income not in prospective demand in small allotments, at indefinite intervals. This class of accounts is the one clogging the physician's ledger—open accounts for years never paid up fully, or worse yet never receiving, over a period of years, even one credit to sweeten it.

These are the frozen assets on a physician's books which over a period mount to a high sum, and upon which the physician depends for a competency on which to spend his declining years in comfort. This hope is seldom attained; most medical men die in harness.

Although a fee schedule for services has been in existence for years, the physician's charges, in most instances, are based upon the individual's ability to pay—a vestige of the traditional Honorarium system—with the exception that it is governed by the physician. The difficulty is one of collection.

As time passes and world conditions change, demanding more and more of us in the way of knowledge and equipment, we must think of ways by which we can get the wherewithal to meet the situation. This means that we must develop some plan meeting our particular needs, which will obviate the present situation, yet which conforms to the ideals and traditions of the medical profession of the United States.

It is my opinion that the State Medical Society should, since there are only 12 component county medical societies in the 41 counties, take steps to study, formulate and adopt a suitable plan of operation applicable alike to urban and rural practitioners, if such a blanket plan be possible, or, if this be impossible, one that could be put into operation by existing county societies and other applicable to operation by isolated practitioners.

The medical profession assailed upon all sides by various schemes of medical practice, some borrowed from foreign lands and some propounded by a group of persons in our own land, seemingly altruistic, but imbued only with the idea that government is an instrumentality for the attainment of their individual and personal ambitions, must be alert to the potential danger.

No schemes of medical relief now operating in foreign countries seem to have elements



embodied in them which do not prove distasteful to the American physician, and which do not violate our ideals and traditions. Be these schemes socialistic, communistic, utopian or what have you, in character they all have the same odor.

I wish to thank you for your attentive interest in a subject probably uppermost in your minds, previously presented in many forms, and of which you have undoubtedly formed definite opinions.

I am impelled to bring this to you now because of this situation confronting us—a situation loaded with disappointments to us, and, particularly, to those who are to follow us, unless we, as an organized body, take it in hand now, formulate our own rules and regulations for handling it—to the end that we, who know better than any other group the medical necessities of our people, how best to provide for them, and how to administer to them, assume at once an aggressive control by study, consideration and adoption of suitable methods.

It is not my intention to weary you with a long dissertation; we have much to do.

This society is organized—the meetings held for the advancement of medicine and our mutual benefit. I earnestly hope that by co-operation we may accomplish much for our own good. To this end I hope that the House of Delegates will see fit to swing into action at this session of the New Mexico Medical Society.

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## SOME REMARKS CONCERNING CLINICAL PATHOLOGY

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(Presented to El Paso County Medical Society  
Feb. 11, 1935.)

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My thesis is that the day of the independent clinical pathologist in the scheme of medical practice is passing, due largely to the reluctance of competent young men who become familiar with the specialty to accept the yoke which the remainder of the medical profession is waiting to thrust upon them. To make clear my position, it is necessary to recapitulate a moment and recall to you the steps that have brought this state of affairs to pass.

When microscopy was in its infancy in this country, and when clinical pathology was being founded, the laboratory worker was considered somewhat as a person apart, due to absolute unfamiliarity of the clinicians with his work. Most of the tests, although crude compared with the tests of today, were surrounded with an aura of mystery that only the laboratory worker with suitable hokus pokus and magic could penetrate. Fees for these tests were out of all proportion to their value in many instances and the laboratory worker had no difficulty in making a good living and maintaining an enviable position in the profession. In those days a urinalysis was quite an advertising stunt and impressed many a skeptical patient; the Wassermann test had the proportions of a rite and profited the serologist \$25.00 or more, and a biopsy was the supreme court of last resort being accorded the respect and homage due its station.

As time passed competition in the field grew, methods became simplified, fees were lowered and the volume of work increased. The simpler tests became routine, clinicians became familiar with their value and gradually the laboratory worker, who in most instances was an experimenter by nature, became swamped by an excessive load of, to him, drudgery. Gradually the outstanding men in the field began to withdraw into institutions where the lesser routine items were done by underlings and where they could devote time and talents to study and advancement. Those who remained in the field resented the circumstances under which most of their work was done. Their lot became that of automatic tester. They were commanded to “test this”, “test that”—Is this pernicious anemia?” Have I gc. on this?” Never a sight of a clinical record! Rarely a glimpse of a patient! They were permitted to delve into the bodies of deceased patients, more often than not, doing the tiresome task alone and without stimulus of the clinicians’ interest whose curiosity died with the last breath of the unfortunate victims.

In spite of all this, however, many were satisfied and followed their specialty with profit until it became universal for young medical graduates to be able to at least follow directions in laboratory procedures and for nurses and other technicians to be “graduate” in large numbers. This circumstance quickly ushered

in the era in which the clinical pathologist somewhat uncomfortably finds himself at present. There exists a body of laboratory procedures which serve as the "bread and butter" makers. This group of tests has almost entirely been taken over as the special province of hospitals and back office laboratories of the clinicians. Indeed many groups and clinics have equipped laboratories to take care of their entire laboratory needs. I admit the accusation before it is uttered that the clinical pathologist is partly to blame for this, but not entirely so. Today of necessity the clinical pathologist must be satisfied with a small portion of this type of work and to make a going concern of his laboratory he must have equipment, reagents and personnel ready to do the more rare and difficult procedures that arise from time to time. Such a state of affairs, can not exist for long. In the future either we must be content to see all of our laboratory work done in large institutional laboratories under the direction of comparatively few men or we must find a new system under which to work.

If I could visualize that the interest of the ideal practice of medicine and the well being of the patient could best be served by institutional laboratories, I should be philosophical enough, I hope, to view the passing of the clinical pathologist without regret, but I can not do so and necessarily must hope for a change that will be of lasting benefit to the clinical pathologist, the clinician and the patient.

I venture to suggest somewhat the course this change must take to be of greatest benefit.

First the clinical pathologist must change his viewpoint somewhat, becoming not less of the bench worker, but more of the clinician.

Second the profession at large must look upon him as a consultant. Let the request be not "do such and such a test" but "here is the clinical picture; do what you can to clear up the picture."

Third, the clinical pathologist must see to it that work of this character is not made too expensive for the patient. This can only be done by volume increase of the more elaborate tests.

The two major stumbling blocks, checking the increased use of the clinical pathologist, are, first the present charges for complete laboratory service and second the unfamiliarity of clinicians with the less usual procedures

and the benefit to be derived from their performance.

At the present time, in the bulk of medical circles the clinicians and clinical pathologists are not working for the greatest benefit to the patient. Until there is greater cooperation between them, we will not be living up to the ideals for which we are supposed to stand. That you as clinicians are not availing yourselves of what competent clinical pathologists have to offer you all know. That the clinical pathologists are obstructing your desire to do so in some ways is also true. This state of affairs will continue so long as the clinical pathologist and his laboratory are considered merely as a place in which to place a specimen and a "report" comes out in the course of time.

A survey of the specimens and requests for laboratory examinations make it apparent that even many of our lowly routine tests are neglected. Simple routine blood counts and hemoglobin estimations are sadly neglected. The less usual items of blood volume index, reticulocyte count, platelet count, clot retractility, fragility test and others are rarely called for until the clinical pathologist suggests them—at the risk of appearing to be drumming business.

In surgery where the paramount problem facing the surgeon is not that of the need or lack of need of operation, but rather is the patient's resistance such that an operation is safe, the assistance to be gained from a clinical pathologist is much more often than not neglected.

The simple blood chemical estimations and kidney function tests, which may so clearly indicate what to expect are rarely utilized. Even the selection of a safe anesthetic can many times be aided by a carefully done CO<sub>2</sub> determination. And rarely do we find these aids utilized for post-operative prognosis. Not often is the CO<sub>2</sub> test used to decide the question of acidosis or alkalosis even when it is known that they are often indistinguishable by clinical means and treatments are chemically opposite. In fact this valuable determination without which the surgeon is severely handicapped in his post-operative care, is so seldom used that it is difficult for the requisite technical proficiency to be maintained.

Blood chlorides, blood volume, blood plasma,



protein and the nonprotein nitrogen of the blood so valuable in estimating the extent of dehydration and so clearly indicating the proper course to follow in problems involving the disturbances of motility of the G. I. tract are practically never used.

Why do we so seldom remember the valuable assistance which knowledge of the blood cholesterol may give us in nephrosis, obstructive jaundice, and hypothyroidism. Why do we request a serological test for syphilis in cases of ununited fractures and not for blood calcium and phosphorous?

The lowly and easily done icteric index can be highly valuable in disease of the gallbladder without clinical jaundice. It is additional evidence in the diagnosis of pernicious anemia. It is an excellent guide to the tolerance of the liver for arsenicals in the treatment of syphilis. The lack of indicated bacteriological studies certainly is leaving a valuable source of pertinent information untouched, often with resulting disaster to the patient.

It would be possible to continue at great length, pointing out circumstances under which tests with which you are familiar might be put to unfamiliar uses. There are many aids not used. There are many used which fall far short of their maximum efficiency. Too often a routine report is the substitute for the opinion of the clinical pathologist.

I do not wish to be misinterpreted as having you believe that laboratory studies are of first importance in the study of patients and their diseases nor that I would urge unnecessarily extensive studies. Neither do I urge their use to create a pseudoscientific background for purposes of medical writing. I do not wish them to supplant clinical study and acumen, but I do urge that the clinical pathologist be called upon in the study of patients and that he be used intelligently.

It is to be remembered that while the importance of these laboratory studies may be small in one case in another they may be paramount.

In conclusion, let me plead that you do not accept these remarks as an attempt to take you to task for not supporting the clinical laboratory. That is of insignificant importance. What I do wish to leave with you is that we are defaulting in our obligation to the best interest of the patient and that we are con-

fronted with the problem of utilizing neglected sources of valuable information in our efforts to establish a correct diagnosis, to foresee possible complications, and risks, to indicate prognosis and to chart a course of treatment.

May I beg your indulgence for these rambling remarks and for the appearance of airing a grievance. My excuse is, I hope you will believe, a sincere conviction that we can more efficiently fulfill our aims as practioners of medicine if the circumstances responsible for the state of affairs in regard to clinical pathology can be changed to provide a more general use of available aids to the better practice of medicine.

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## HEREDITARY OPTIC ATROPHY (Leber's Diseases)

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(Read before the Arizona State Medical Assn.,  
Phoenix, Apr. 27th, 1935.)

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Hereditary optic atrophy had been known more than 100 years when Beers described cases coming under his observation. Later von Graefe and others described cases.

In 1871 Leber described 15 cases in great detail and emphasized the hereditary nature of the disease. He believed that the atrophy was preceded by an optic neuritis or neuroretinitis. Because of Leber's classic description the disease has since borne his name.

The disease is preponderantly one of young adult life, making its appearance from the 15th to 25th. years, though variations from these ages are common. Knapp and Taylor reported cases as early as the 6th year. Sedgewick reports a case beginning in a man of 64 and whose four sons became afflicted from the 42nd. to 56th. years respectively. About 25 per cent of all females to become afflicted do so near the age of the menopause. The mean age for the onset of the disease, according to Bell is 23 years in females and 25 in males. The disease seems to be in some way connected with the beginning or end of the sexual period.

That the disease is hereditary in character there seems to be a unanimity of opinion. Usher, Nettleship, Thompson, and Hancock

trace it through as many as five generations. Barth, Usher and Gould record pedigrees of six generations, and Bell traces the disease through 11 generations, in her exhaustive work. It has been observed that if two or more members of a family become afflicted, that the onset occurs at about the same age in each individual.

It is generally confined to the male sex, though Nettleship, in his group found 20 per cent in females. Story and Snell reported four males to one female in their respective groups.

The onset of the disease is relatively rapid. Bedell, Cordes and others report cases progressing to almost complete blindness during one night, and generally the disease in all cases, is pretty well established within two weeks. In the beginning there may be some dizziness, headache and nausea. The disease is always bilateral. Rarely does complete blindness occur. Enough vision remains to enable one to get around, but not sufficient for useful work. It ranges from the counting of fingers at two to three feet to 20-100. Frequently there is a slight improvement in vision a few weeks after the onset. A few cases have been reported by Nettleship and Hancock in which there was a marked improvement, and a few cases have regained almost normal vision.

Nearly every case investigated shows a central scotoma and many of them contracted peripheral fields. The ophthalmoscopic findings are those of primary optic atrophy, with no other fundus changes except a diminution in the size of the retinal vessels. The pupils generally are of normal size and shape and react to light.

These cases are notably free from other nervous and general systemic diseases. A few, however have been reported as suffering from persistent headaches, epilepsy, mental disturbances and lessened deep reflexes. These exceptions perhaps constitute no greater percentage of defects than would be found in any group of patients.

While the disease is purely hereditary, some believe that certain toxic agents, acute infections and trauma act as precipitating causes. Consanguinity does not appear to play a role, unless perchance both parties in the mating carry the taint, in which case the chance of transmitting the disease is greater.

Habersham and later Fisher thought that

because the type of the atrophy, and the further fact that the disease was more apt to make its appearance at puberty or the menopause, that perhaps it might be due to pressure exerted at the chiasm by a swollen pituitary gland.

Many have studied the disease from this angle, and while some of them found what they considered confirmatory evidence, I think the general impression at the present time, is that the pituitary is not at fault.

Gowers thought that it was an abiotrophy, that is, a lack of inherited vital force, causing the ganglion cells and their fibers to perish before their time. Treacher Collins and others have later come to the same conclusion.

It is believed that Leber's Disease, like color blindness and hemophilia, is a sex limited, recessive disease, transmitted through affected or non-affected females, to the male offspring, and occasionally to the female offspring. It is rarely transmitted by a male. According to Bell's statistics, of 575 affected males, 95 per cent of them, and of 88 affected females, 84 per cent of them, came from the maternal side. Bedell recently published his observations covering a period of 25 years, relating to five generations in three families. The families being called A B and C. A family had a clear record until one member married a woman, herself free of the disease, but carrying the taint. The family then began to produce Leber's Disease. B and C families then married into the A family, and likewise began to produce the disease. B and C families were free of the disease prior to their marriage into A family. Up to the present 10 cases have appeared from these families.

So far as known only one autopsy has been performed on a case of this disease. This was done by Rehsteiner in 1930. The disease had existed seven years. The only intraocular changes found were atrophy of the ganglion cell and nerve fibre layers of the retina. In the optic nerve there was atrophy of that part corresponding to the papillo-macular bundle. There was an increase in the connective tissue septa within the nerve. He came to the conclusion that there had not been a previous inflammation of the nerve, but that it was essentially a primary degeneration.

During the past two years I have seen four cases of hereditary optic atrophy, in two fam-



ilies—two in each. The first group consisted of brothers. The second group consisted of brother and sister. In the first group they both became affected at about the same age—15 years. When seen they were 16 and 19 respectively. Th vision being 10/200 in one and 7/200 in the other. They both stated that their vision was excellent prior to the onset, and progressed to its present status within a week's time, that they were well at the time of onset, and had not since suffered from any other ailment. They both believed that vision had improved. I was not able to get information from them regarding blindness among their relations.

In group two, the boy aged 19 stated that two years before, he became almost blind within two days, unaccompanied by other disturbances and that vision has remained stationary since that time. He counts fingers at four feet. The sister is now 15, and has been nearly blind one year. She thinks it came gradually over a period of two months, and that it has improved considerably, though she can only count fingers at four feet.

The findings in these four cases were typical of the description of Leber's disease. The pupils were round equal and reacted to light. The media were clear; the discs were pale. There were no other fundus lesions. Tension was normal, with no extra ocular disturbances. All were refracted and found to be free of gross errors. Lenses did not improve vision. The form fields showed a central scotoma, and two of them had moderately contracted peripheral fields. The two groups were free of other gross physical defects. Two of them had blood Wassermanns done, which were negative. The girl told me that she had a cousin in California and an uncle in Southern Arizona similarly afflicted. I also obtained in a second hand way, information that groups one and two were related, but to what degree I could not ascertain.

Since the condition is a primary degeneration due to hereditary causes, it is obvious that treatment is of no avail. We can only advise. Bell thought that if the females so affected could be prevented from bearing offspring, that the disease would disappear. As before mentioned the male is a negligible factor in its propagation. Our endeavors, therefore, should be directed toward females, whether affected or not, of the families in which the disease ex-

ists. They should be advised not to bear children, or better still, they should be sterilized.

#### DISCUSSION

Dr. Harbridge: Dr. Franklin is to be commended on the manner in which he has brought this subject to the attention of the Society. There is little published on the subject; in fact there is little known of it. All that we have to guide us is pure theory. My own experience has been limited to observation on three series of cases. One of these series was in the east and two have come to my attention here in the west. One was the case of a large Mexican family which might, perchance, be the one as observed by Dr. Franklin. I had little opportunity to go carefully into any of these cases. In this particular Mexican group there were four or five boys and two or three girls, closely and distantly related, who were affected. Past histories were difficult to obtain. In the case of two brothers I had a little better opportunity for study; yet there was little to learn. In the case of the brothers, the classical symptoms as established by Leber were borne out in that the onset was sudden. The one boy went to bed apparently all right and awoke to practically complete blindness. The disease reaches its peak in about three months with some improvement noted by that time. This peak is followed by no further improvement. The cause of the disease is not known. No protection against it can be offered except the non-marriage of the females of the line.

In 1919 Dr. Pancoast published his investigations relative to the bearing of the size of the pituitary and of the clinoids on the disease. It was thought that the size of the pituitary might have some bearing on the disease. The investigations revealed nothing more except additional theory. The same might well be said of the work of investigation as done by Dr. Zentmayer in 1918. The description of Leber still holds.

Lt. Col. R. E. Wright, Supt. of the Government Ophthalmic Hospital, Madras, India, in a recent issue of the British Journal, gives a most interesting discussion of the cases of three boys from one family all afflicted, with the one sister escaping the disease. The photographs illustrating the article show that the boys have the most oddly shaped heads, having changed shape since the onset of the disease according to the facts gathered. The question arises as to the amount of familial macular degeneration there might be involved. As I have said, the entire subject and study of the disease reveals nothing more than theory. Dr. Franklin's paper reveals the situation as we have it.

Dr. Carlson: I have in mind the cases of two sisters and three brothers. The sisters have blind mates. Two daughters of the brothers each have sons, one daughter having a blind son and the other a boy of six, who as yet is all right. While rarely herself being afflicted, the female transmits the disease.

Dr. Franklin (concluding): Records show that 20 per cent of those afflicted are females. The earliest

afflicted cases I have found reported was a child six years of age. With males the onset seems to come at the age of puberty, while with females the disease comes on more often at the age of the menopause. As Dr. Harbridge has stated there is no protection from the disease except non-marriage of the female of the afflicted line.

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## MISSED ABORTION

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(Read before the Panhandle District Medical Society, Amarillo, Texas, April 17, 1935.)

Since the most meager references only have appeared in our medical literature to the important subject of "missed abortion", it seems advisable to redirect our attention to it.

As early as 1847, Oldham<sup>1</sup> recognized the occurrence of an obstetrical phenomenon differing from "protracted pregnancy", and described the condition as "missed labor." "Missed labor" he defined as death with no expulsion. Duncan<sup>2</sup>, in 1878, called attention to the fact that death, before viability and with no effort at expulsion, presented a problem differing from that of death in utero, beyond full term and without labor. The former he designated as "missed abortion", or "missed miscarriage"; the latter logically was true "missed labor." Until Litzenberg<sup>3</sup>, in 1921, directed the attention of American obstetricians to this by no means rare phenomenon, little had been added to our knowledge of missed abortion.

De Lee defines "missed abortion" as retention in utero of a whole but dead fetus for days, weeks, months, or years. He describes certain post mortem changes in the fetus which resemble those seen in dead ectopic fetuses, but calls attention to the fact that there are no characteristic symptoms upon which the obstetrician may base a diagnosis of "missed abortion." Litzenberg is disinclined to accept De Lee's definition in its entirety, although he, too, remarks upon the paucity of symptoms. Litzenberg would arbitrarily so modify the definition that "missed abortion" would refer

only to retention in utero of a dead fetus for a period of six weeks or longer.

Analysis of Litzenberg's reports indicates that "missed abortion" most frequently occurs in the third pregnancy, although primiparous "missed abortion" occurred in 33 per cent of his cases, and there was at least one sextiparous diagnosis. My own experience suggests that it may occur as frequently in primiparae as in multiparae. Litzenberg also shows that death usually occurs in the fourth month of uterine life, but may occur at any time from the first to the fifth month. Retention in utero of the dead fetus varies from two to 10 months, with an average period of retention of four months. Henry<sup>4</sup> and Rongy and Arluck<sup>5</sup> report cases in which the dead fetus was retained for over a year, and Forster<sup>6</sup> describes a "missed abortion" with superimposed pregnancy. The dead fetus must have been retained for more than nine months, for the superimposed pregnancy followed a normal nine-month course. Four cases, that recently have come under my observation, seem to indicate a somewhat shorter period, probably under four months in each instance.

Litzenberg stresses the absence of specific symptoms, and shows that general symptoms make their appearance only in certain instances. General symptoms are malaise, anorexia, dyspepsia, anemia and afternoon temperature. Nervousness and insomnia were present in one of my cases; but the others "felt fine." Litzenberg also notes loss of weight. This I can confirm; but I wish at the same time to call attention to an increase in weight that commonly follows fetal death and is a precursor of loss in weight. Other physical symptoms, which Litzenberg sometimes observes, are: Signs of an incipient abortion that does not occur; failure of the uterus to continue to increase in size; it even may decrease; a peculiar consistency of the uterine wall intermediate between the elastic softness of normal pregnancy and the hardness of fibroid degeneration; cessation of fetal movement; regressive changes in the breasts; and more or less continuous hemorrhage which may begin like the hemorrhage of incipient abortion, but which soon becomes intermittent; it even may simulate irregular menses. Notable failure of the uterus to continue to increase in size, in three out of four cases, has led me to accept such failure as a reliable symptom of



"missed abortion." The contradictory increase presented by the fourth case is understandable in the light of a subsequent confirmatory diagnosis of uterine fibroid. Cessation of fetal movement was demonstrable in only one of the cases to be reported, and temporary uterine bleeding occurred but once.

Spelman, Goldberger and Frank<sup>7</sup> called attention to the success of the "female sex-hormone" blood determination as an index of fetal viability, and in the same paper pointed out the doubtful value, of the Friedman, and, of the Ascheim-Zondek, urine determinations, except when these reactions are negative. While it is possible that evidence of fetal death can be obtained at an earlier date by the Frank-Goldberger method than by the Ascheim-Zondek test, which may not give a negative reaction for as long as 30 days after fetal death, it is my belief that the more readily available Ascheim-Zondek test is entirely adequate as a confirmatory test preceding any attempt at uterine relief.

Despite the foregoing discussion, diagnosis of "missed abortion" is not particularly difficult if it be kept in mind as a possibility. It should be strongly suspected if a woman has skipped one or two menstrual periods, and has experienced symptoms of threatened abortion which have subsided. Failure of the uterus to increase in size readily can be determined either by two examinations made one to two months apart, or by a comparison of the actual size of the uterus with the theoretical size that it should have attained by the supposed period of gestation.

The pathology of missed abortion has been adequately treated by other writers, and has no place in this paper since it is of little significance from the standpoint either of diagnosis, or of treatment. I might remark, however, that my own observations agree with Litzenberg's statement that the normal finding, in a case of "missed abortion", is a macerated fetus; but there is ample evidence that calcification, mummification and skeletization of fetuses do occur.

As Litzenberg points out, the prognosis is not as favorable as it generally is supposed to be. While most cases, if left to themselves, eventually will expel the dead fetus, the dangers inherent in its retention are obvious. Treatment, therefore, cannot be postponed

with safety. If ordinary methods of inducing expulsion fail, the cervix should be dilated, the uterine contents removed by curettage, and the uterus packed to prevent postoperative bleeding. If difficulty is encountered in an attempt to dilate the uterus, one should not persist in the attempt, but should perform immediately a hysterectomy of cesarean section. Otherwise, one may have an experience similar to that described by Stein, in which curettage resulted in rupture of the anterior wall of the cervix, with consequent "birth" of the blighted fetus into the perivesicular space. During a second curettage, which subsequently became necessary, the operator broke through into the peritoneal cavity, repeatedly perforating the small intestine, and drawing mesentery and omental fat through the uterus into the vagina. A laparotomy with multiple repair was done; prompt and appropriate surgical measures at the time of the first curettage would have precluded these untoward events. In my experience, surgical interference has been necessary but once, and with no complications.

In support of statements I have made earlier in this paper, I wish to submit brief resumés of four case histories that have come under my observation in the brief space of two years, all of which showed negative Wassermann reactions.

Case 1, 28 years, married 14 months; primipara; first examination, April 27, 1932; last menstruation 92 days before; nausea for preceding 30 days; uterus enlarged three months pregnancy; confinement predicted Nov. 3, 1932; weight 109.5, three days later less nausea, weight 111.5, B. P. 110/70; three weeks later 3.5 months preg., no increase in size of uterus; nausea had subsided; weight 112.75; B. P. 95/60; patient absent from city; four weeks later 4.5 months preg., no increase in size of uterus and no cramps; uterine bleeding for one week and dark discharge continued three weeks longer; weight 112; B. P. 110/60; two weeks later five months preg.; dark discharge continues; no increase in size of uterus and no cramps; weight 113.5; one week later dark discharge clearing up; no increase in size of uterus and no cramps, weight 111.75; no fever; one week later 5.5 months preg., no discharge, no increase in size of uterus and no cramps, weight 114; two weeks later 6.5 months preg., Ascheim-Zondek negative; hospitalized; uterus packed; curetted and packed; three-month macerated fetus and placenta with infarcts removed; uneventful recovery.

Case 2. 35 years, married 12 years, secundi-

para; four-month primipara interrupted therapeutically because of rachitic pelvis; nine-month secundipara terminated by cesarean section; first examination, Aug. 8, 1934; last menstruation 125 days before; uterus enlarged to three to four month pregnancy; confinement predicted in five months, Jan. 11, 1935; weight 109; patient out of town; six weeks later 5.5 months preg., no increase in size of uterus and no cramps, no uterine bleeding and no discharge, no fetal movement, weight 109.75, B. P. 110/70; three weeks later, six months preg., bedside delivery of twins macerated; three to four-month fetuses; uneventful recovery.

Case 3, 19 years, married four months; primipara; first examination, April 19, 1934; last menstruation 109 days before; uterus enlarged to three to four-month pregnancy; confinement predicted in 5.75 months—Oct. 8, 1934—weight 101.25 B. P. 110/70; examined every two weeks; weight gradually increasing, (death of fetus); 17 weeks later, 6.5 months preg., weight 121.25; B. P. 140/100; albuminuria one plus; three weeks later, 7.25 months preg., no toxemia, weight 116; B. P. 120/80; three weeks later, 7.75 months preg., uterus palpated at level of umbilicus, no fetal movement; no fetal sounds, weight 114; B. P. 110/70; albuminuria negative; one week later, eight months preg., weight 114; B. P. 100/70; albuminuria negative; two Aschheim-Zondeks negative; hospitalized; uterus packed; delivery spontaneous of five months macerated fetus and placenta larger than normal and waxy small amount of amniotic fluid.

Case 4, 41 years, married 12 years; secundipara; normal deliveries; first examination, April 3, 1932; last menstruation 141 days before; uterus palpated at level of umbilicus; 4.5 months preg.; weight 134; fetal movements already felt; six weeks later, six months preg., (death of fetus); uterus palpated two inches above umbilicus; no fetal movement and no fetal sounds; weight 138; four weeks later, seven months preg., uterus palpated at level of 8 months pregnancy; no fetal movement and no fetal sounds; weight 143; Aschheim-Zondek negative; patient refused aid; five weeks later, 8.25 months preg.; no increase in size of uterus; no increase in weight; 18 days later, 8.75 months preg.; spontaneous delivery of macerated two-pound fetus and large waxy placenta; large amount of amniotic fluid; examination revealed uterine fibroid size of grapefruit.

In conclusion: The three cardinal points in diagnosing "missed abortion" are: The weight record, and size of the uterus, and a negative Aschheim-Zondek test.

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## SILICOSIS

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Pneumoconiosis is the reaction of the lungs to the presence of any kind of dust. Silicosis is the reaction of the body, especially the lungs, to the presence of silicon dioxide, or silica, in a finely divided state. It is widespread fibrosis.

During the last decade silicosis has come to hold a prominent place in the medical world, because of interesting pathological and clinical standpoints, and mostly, perhaps, because of its relationship to many modern industries and, association with tuberculosis.

Silicosis has been known for years. In 1700 Ramazzini mentioned the disease of stonecutters who, as he says, "oftentimes suck in by inspiration the sharp rough and cornered small splinters and particles that fly off so that they are usually troubled by cough, and some of them turn asthmatic and consumptive . . . and in dissecting the corpse of such artificers, lungs have been stuck with little stones." As recently, however, as my own medical school days, no particular importance was attached to it and there was no accurate description of its pathology. However, the two conditions "miners' dyspnea" and "miners' phthisis or consumption" have long been recognized in mining communities, not only by medical men but by the laity. The former is shortness of breath only, or simple silicosis; the latter, shortness of breath with wasting—silicosis and tuberculosis. Lanza and Vane in a startling paper on the prevalence of silicosis and the incidence of tuberculosis show that mining is still the most important industry in the production of silicosis and tuberculosis. Their figures are that zinc and lead miners have almost 20 times the expected death rate from tuberculosis of the general population. Copper miners have nine



times this rate, gold and silver miners eight times, and iron miners two and a half times. Granite and sandstone cutters have nearly 10 times the expected rate, and metal workers, chippers, moulders, etc.—up to six times. Moreover, these authors produce evidence to show that more than 500,000 industrial workers in the United States are dangerously exposed to silica dust and therefore are in the group having increased frequency of tuberculosis.

It is stated on good authority although mining is the chief industry of Arizona, and metaliferous ores all contain a high per cent of silica, that silicosis is not a serious health hazard in this state. This is due to adequate ventilation, the humidifying of mine air, wet drilling and the constant use of spraying to keep dust down. I cannot vouch for the general applicability of this statement.

No dust except that containing a high percentage of silica produces a condition like silicosis. Coal, limestone, organic dusts, etc., show no similar effect on the lungs or elsewhere in the body. This is emphasized by work at the Saranac Laboratory. The dusting of guinea pigs for long periods, using several materials, was followed by a silicosis-like condition only where very fine silica dust was used. Miller Sayers and Yant injected into the peritoneal cavities of guinea pigs suspensions of fine particles of quartz, chert, ferrous oxide, coal, limestone, etc., and found all were either inert or absorbed without injury to the tissues except quartz and chert, which are high in silicon dioxide and which produced nodular proliferative lesions. The British geologist W. R. Jones recently propounded the theory, after study of rock dust in a number of mining fields and the lungs of miners dying with silicosis, that the body reaction in the disease is in response to the presence of fibers of sericite, minute mica-like needles of a hydrated silicate of potassium and aluminum, rather than to the crystals of silicon dioxide. This requires further study.

Some maintain that the sharp angles and edges of the silica crystals cause trauma to the alveolar walls of the lungs. Most workers, however, think that there is a chemical action i.e., the silica particles dissolve in the faintly alkaline juices of the tissue cells and phagocytes, and the resulting solution is poisonous stimulating nodulation and fibrosis. Gye and

associates found that colloidal silica injected intravenously was deadly poisonous in large doses, but in small doses only poisonous enough to produce fibrosis. While many students of the condition do not subscribe to Jones' view, it might fit in with the mechanical theory as the angles and edges of the exceedingly fine particles are sharp and penetrating, or with the chemical, where much surface is exposed to tissue juices, and the silicate being more soluble than silicon dioxide. I have found no evidence that silicon dioxide actually dissolves in tissue juices, at least in vitro. Chemists have questioned its solubility as they consider silicon dioxide to be the most insoluble of minerals. The action may be colloidal. By whatever process the injury is accomplished, silica dust when breathed into the lungs produces fibrosis reducing lung power, and predisposing to tuberculosis.

The tissue reaction is inversely proportional to the size of the particles, and directly proportional to their number—i. e. the finer the dust and greater the number of particles, the more severe the reaction. The particles must be smaller than 10 microns in diameter and more than 10 million per cubic foot to produce appreciable effect. Other factors, chiefly length of exposure, and rate of respiration—a function of purity of air breathed and effort expended—bear on the development of the disease. Once there has been an exposure to silica dust sufficient to establish even a minimal silicosis, the disease progresses even though exposure has been terminated, and death often is directly attributable to silicosis or silico-tuberculosis.

The pathogenesis of silicosis consists of nodulation and fibrosis. Gardner's description is particularly illuminating. Particles that get past the protective mechanisms of the upper air passages reach the respiratory bronchioles and alveoli. The first reaction is non-specific—that of the lungs to any foreign body. The particles are engulfed in the ameboid phagocytes of the nearby alveolar walls. These cells accumulate in the sub-pleural air spaces, the walls of which thicken. The cells, which have taken in a few silica particles, move toward the lymphatic system and collect in nodular masses about the lymphoid tissue at the periphery. These silica containing phagocytes pass through the walls of the lymphatics and excite

fibrous nodulosis in the areolar tissue. The reaction is at first linear in distribution and tends to thicken the structures through which lymphatics pass, viz: Bronchi, pulmonary arteries and veins, interlobular septums and pleura. Later this linear phase is overshadowed by nodular formations. The fibrous nodules in the lymphoid tissue resulting from the physico-chemical properties of silica encroach on and compress the adjacent lymph vessels so that the flow of lymph is impeded. Hence there is an increasing tendency for phagocytes to migrate outward through the walls of the vessels. When lymphatic obstruction is advanced, phagocytes carry the dust to all parts of the pulmonary framework with the formation of dense interstitial fibrosis and multiple nodules in the walls of the terminal air spaces. This reduces the size of their lumen with an intrinsic reduction in lung capacity. Lung tissue not involved in the fibrosis becomes emphysematous as a compensatory measure.

The most common and, serious complication of silicosis is tuberculosis. This may have been latent previous to the time of the dusty occupation, or it may have been acquired afterward. Silica has the power to reactivate a healed focus if tubercle bacilli are still present. The combined disease progresses rapidly. Haldane states that silicosis causes the lungs to become more susceptible to tuberculosis. Cummings thinks that the presence of silica acts as an adjuvant to the multiplication of tubercle bacilli. Gardner says 75 per cent of the persons who develop silicosis die of tuberculosis because silica dust produces definite specific susceptibility to tuberculosis. In the characteristic lesion of silicosis modified by tubercle infection the individual nodules are no longer clean cut and sharply defined, but the borders are irregular and extend into the walls of adjacent air spaces. The centers of the nodules are often caseous but tubercle bacilli are rare. Nodules and tuberculous foci are bound together by dense fibrous material.

Dyspnea is the cardinal and ever present symptom; the constant physical sign is reduced chest expansion. Patients usually are well nourished and seem robust. Fever is absent and blood pressure is not far from normal. Marked loss of weight, elevation of temperature or fall in blood pressure should at once

suggest the development of tuberculosis. The progress of silicosis is usually divided into three stages. In the first or antepimary stage of the South African writers about the only evidence is a slight shortness of breath on exertion and a mild unproductive cough. There is slight reduction in chest expansion; work capacity is not much impaired. Occasionally rales can be heard at the bases. The second or primary stage has definite dyspnea on exertion and a loss of elasticity of the thorax. Frequently there are pains in the chest and an irritative cough. The capacity for work is considerably reduced. In the third or secondary stage the shortness of breath is severe and distressing. Cough is persistent but not productive. Capacity for work becomes almost nil. Chest expansion is markedly reduced often with clubbing of the fingers. Throughout increasing diminution in the intensity of the breath sounds exist the result of emphysema and fibrosis with decrease in elasticity of the lung tissue.

The most illuminating procedure for antemortem study of silicosis is the x-ray examination. I have adopted the terminology and description of Pancoast and Pendergrass for the stages mentioned above: First—the perivascular-peribronchial-lymph node phase: The hilar shadows are more prominent than usual and of greater density and homogeneity; trunk shadows and linear markings show increased prominence. Second—the early interstitial phase: There is a faint homogenous haze appearing first in the right mid or lower lung field, then in the left, gradually spreading; small discrete nodules may or may not coexist; the hilar and trunk markings are noticeably accentuated. Third—the nodular phase: This is the most characteristic; there are small dense discrete nodules throughout both lungs; the pleura is not involved; smaller nodules become larger and conglomerate. There is interference with the excursion of the diaphragm possibly from interstitial fibrosis and emphysema, and sometimes there is peaking of the domes.

Modification of silicosis by tuberculosis is shown on the x-ray film by the outlines of the previously discrete nodules, becoming lazy or fluffy, and a definite tendency toward aggregation of the nodules. There are dense shadows in the midportions of both lungs. It is a strange phenomenon that not only the nodules in close contact with the tuberculous foci but



those in every part of the lung show this alteration.

For diagnosis, a thorough and chronological occupational history also is extremely valuable. Evidence of exposure to silica dust, or lack of such evidence must be of significance.

As to prognosis: Silicosis is an incurable disease. Removal from further exposure may prolong life, and avoidance of exertion may relieve respiratory distress. Landis says, "knowing the type of dust and the length of exposure we can predict the amount of damage" and so, to a certain extent, the outlook for life and comfort.

Prevention of silicosis—the only hope in this sad situation—must be attempted along two lines: (1) The elimination of dust in mine and shop, by adequate ventilation and removal of dust by suction, etc., by wet drilling and the copious use of water to keep the dust down; (2) examination of the worker by x-ray before he's starting to work, and subsequent examinations every three months; prompt removal from exposure with evidence of silicosis.

The German investigators have a simple instrument to determine the ability of a worker's nose to fix dust. If his nose's fixation power is below 29 per cent, he is not allowed to work in dusty trades as it has been found that those in the low fixation group are susceptible to silica dust while the greater the fixation power of the nose, the less susceptible is the worker to the dust. Such a procedure might be of value in employment offices of dusty industries in this country.

As I see it, compensation should run parallel with knowledge. An employer, who makes every effort according to existing knowledge to prevent his employees from acquiring silicosis, should not be subject to compensation claims. Negligence or lack of concern for employees, however, should lay the operator open to just claims for disability compensation.

JOHN E. BACON, M. D. I wish to compliment Dr. Thorngate on a very able presentation of the pathology of silicosis. The question of silicosis is becoming a sort of hysteria even among the laity. Recently a newspaper reporter in the daily press compared the damage impaired by silicosis to that from war. The uppermost point to be considered is diagnosis. It is my belief that only three or four of the men here present are able to diagnosis silicosis. And I say this with all due respect for the professional ability of every man present.

"The stages of silicosis overlap, and other fac-

tors enter confusing accurate diagnosis. A complete history of the case is not only essential, but mandatory. The habits of the man before and after contracting the suspected disease are of high importance. Then, too, unless a physician can thoroughly read plates a false diagnosis is apt to occur.

Mining men change their abode frequently, or did when mining was at a high peak. They work in Canada, Alaska, South America, and in various mining sections of our own country. The Southwest gets many men who have worked here, there, and yonder. The last mining company employing the man in question is subject to his claim of contracting the disease. I say the case should be thoroughly investigated from every source in fairness to all concerned.

The Arizona mining code has been amplified since 1912. The mining inspector carefully studies all cases of accident and health impairment. In 1916 the dust hazzard was recognized. Dr. Harrington of the U. S. Bureau made recommendations which have been thoroughly carried out. There has been continuous sprinkling in the mines, on dumps, and perfect ventilation systems have operated for years. Every effort has been made by the mines to meet the humanitarian, as well as legal, obligations to protect against silicosis.

DR. FRED G. HOLMES: What Dr. Bacon says relative to tracing the original source of silicosis is often true. I know of a miner who left mining and for 22 years engaged in farming. He contracted the "flu," did not make a satisfactory recovery. The x-ray revealed silicosis. Death eventuated. Having been away from mines for a period of 22 years, it was impossible to trace the source of this man's silicosis.

At Saranac I had the privilege of observing slides showing the progress of the disease with guinea pigs. The revelations were of remarkable interest. It takes a careful reading of plates to diagnosis accurately.

R. O. SCHOFIELD, M. D.: During the earlier days of construction at Boulder Dam about 8000 men were employed, many of whom for the driving of the large diversion tunnels. This type of workman often claimed to have had considerable previous experience as a "hard rock" miner.

During the work there occurred an epidemic of respiratory infection which was equally prevalent among the people of the city as well as among the miners. It is interesting to note that in reviewing chest plates that were taken at that time of men who were considered hard rock miners, together with chest plates taken of this same type of employee and other employees during subsequent years, that in only 23 cases has there been any x-ray evidence of fibrotic or nodular lung changes that might be interpreted as a possible condition of silicosis. Many of these cases were accidentally discovered when radiographs, were taken for dorsal spine or rib injuries while oth-

ers were taken during the epidemic of infections and pneumonia.

The correlation of data surrounding these cases where x-ray findings have revealed lung changes indicate that silicosis has never played an important role in the morbidity of men employed at Boulder Dam.

DR. THORNGATE in conclusion: I appreciate these discussions very much and wish to agree with Dr. Bacon that diagnosis is difficult. Such authorities as Landers confirm this opinion.

## EYE PROBLEMS OF THE GENERAL PRACTITIONER

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Medicine is becoming more specialized every day. The physician usually branches off into his specialty after serving his interne year and another year or two of specialized training. The tendency is increasing for us to forget that the symptom the patient presents may really fall into a field other than the one in which we are particularly interested. If a patient complains of a headache, the treatment will usually depend upon the specialist he happens to select. Should he consult the "nose man", the patient will frequently find himself minus his septum, and possibly a few ethmoid cells. Should the "eye man" see him he is pretty sure to walk out with a pair of glasses. The internist will put him on iron and thorough G. I. series. The orthopedist will probably prescribe arch supports. Fortunately, the gynecologist can only fixate the uteri in a certain percentage of the population. While these examples are slightly exaggerated, we all, nevertheless, have encountered similar experiences. It is for this reason that I shall endeavor to describe a few ocular symptoms which may be of value in both general and specialized practice.

Let us begin with a discussion of infantile problems. The first ocular complication that may present itself is usually the one following the instillation of silver nitrate in the newborn. For the first 24 hours after instillation there is invariably a moderately severe reaction often accompanied by a profuse discharge. Frequently this condition is mistaken for gonorrheal ophthalmia, which, as a rule, does not appear before 48 hours. If we are in doubt, we have the microscope to help diagnosis. Because of the fact that a conjunctival irritation is present, medications such as boric washes

and colloidal silver instillations are immediately prescribed. The condition usually becomes worse so that the strength of the medication is as a rule increased, and the stronger it goes the more severe the reaction. The clue to the cure is to disperse with all treatment, and within 24 hours the infant's eyes are usually on the way to recovery.

Next comes the question of the care of the infant's eyes. It has too frequently been a practice to wash the baby's eyes once or twice daily with a boric solution which, however, is not advantageous but actually dangerous. The possibility of contamination too often sets up a conjunctivitis, and then because of overtreatment, symptoms again appear. If a small amount of normal secretion appears on the lids, an applicator moistened with a very weak zinc solution can be used to wipe away the crusts. That should be all the care necessary. By no means permit the instillation of any medication into the eye unless there is a specific reason.

Another frequent complaint in the infant is the tearing eye. Active treatment here, too, will set up a severe reaction. Gentle pressure over the lacrymal sac downward, will frequently open a stenosed lacrymal duct. During these first few days of daily pressure over the sac, it is advisable to instill daily a drop of a colloidal silver preparation. If the symptoms persist after a week's treatment, it is advisable to switch to a weak zinc solution, one-quarter of a grain to the ounce to be instilled once a day. If the eye does not respond in another week to 10 days, it usually becomes necessary to probe the tear duct. We like to wait four or five months before this is done.

During the infant stage, the complaint that the baby's eyes cross is frequent. This is of no particular significance as the child has not finally developed his fusion until about the age of two, and strabismus is not uncommon up to this age. If the tendency toward a strabismus exists after the age of two, an oculist should be consulted.

During the early period of childhood a white spot in the pupil is occasionally seen. If we are sure that it is a cataract we do not have to be particularly alarmed, as performing a discission, even as early as 18 months, will usually cause its absorption. Of course, if the opacity is not too extensive and the child is still able



to see, it may not be necessary to operate early. There should always be sufficient clear lens material in order that we may obtain a view of the fundus, because without a knowledge of the fundus picture, there is always the possibility of a neoplasm, posteriorly. The neoplasm most frequently encountered is glioma. However, glioma usually occurs without the complication of a cataract, and is often erroneously diagnosed as cataract. Glioma usually gives a greyish or yellowish glow in the pupillary area; careful examination reveals the fact that the lens is not involved. The pupil should always be dilated in order to determine if there are any new blood vessels on the mass. If the findings are positive for glioma, an enucleation is always indicated, and even then, the prognosis as far as life is concerned is bad. The younger the child when the growth appears, the more the probability that glioma will occur in the other eye.

From the age of about three on, the cross-eyed problem confronts us, and early attention is always necessary. The possibility that the child will outgrow the defect is so slight that it should never be considered, because the percentage that correct themselves is so small. Even if it seems that the deviation is decreasing but some still exists, even a few degrees, a nearly blind eye from non-use is usually the end result. Should a child present himself with a deviating eye, we can easily determine the prognosis by instillation of a one per cent atropine solution, t. i. d. for three days. If the eye straightens at the end of three days, we know that we are dealing with a strabismus that probably may be corrected by the prescribing of lenses, supplemented by muscle exercise. If the deviation persists after three days, operative procedure is indicated. This is the only method of correcting the difficulty. We must remember that many cases require an operation to straighten the eye, and glasses because of a high refractive error. Even after operation, whether there is a high refractive error or not, muscle exercises should be employed to develop the fusion sense, and by means of fixation exercises eyes with low visual acuity are frequently improved. In this way the eyes may be coordinated and stereoscopic vision achieved; thus resulting in a good functional condition instead of merely a cosmetic result. Strabismus frequently occurs

after a general illness, not that the illness itself is responsible for the squint, but the general asthenic condition will permit the weak muscle to give way. Irrespective of when the strabismus occurs after the age of three, treatment should be instituted immediately.

We have so far discussed only the physical and anatomical side of squint, and shall now mention a point that is most important but unfortunately often overlooked; that is: The psychic effect. The cross-eyed child is usually a backward and bashful youngster, the cause being the comments that are made by his unkind playmates. Rather than subject himself to this humiliation, he avoids his playfellows and often refuses to recite in school for fear of some comments or ridicule. Unfortunately, the inferiority complex frequently becomes so fixed that it may be a handicap for the balance of the victim's unhappy life.

At the beginning of the school years the symptom of headache is not uncommon with children. A refractive error is usually the cause of the complaint, although we must not forget that the etiological factor may require the opinion of an otolaryngologist or even a neurosurgeon. Of course, a refraction is indicated, and very frequently the cause is located in a refractive or muscle error. Children of this age should be cautioned regarding their reading. They should be permitted to read only when sitting erect, and with the proper illumination. Reading in poorly lighted corners or while lying down in bed is extremely dangerous, and undoubtedly predisposes to myopia. One should be particularly cautious in permitting children to read during an illness. Due to the general asthenia they are more prone to develop myopia.

During the acute exanthematous diseases, no particular care of the eyes is required, unless a definite ocular symptom develops. The child should not be exposed to the bright light because of the already inflamed conjunctiva, but it is not necessary for the patient to be kept in absolute darkness.

Most of the ocular symptoms during school days are due to errors of refraction or weak accommodation. We frequently examine children who are labeled as backward, or not particularly interested in their school work. They have no physical complaints, yet we often find that defective vision is the cause of it all.

Granulated lids during these early years is another common complaint. Of course by this we mean blepharitis, or scaly lids. The most probable cause is a refractive error, but malnutrition must always be considered. We rarely find in children the other causes to which adults are subject, such as occupational irritation from gases, etc. Applying ointments of yellow oxide seldom suffices, and often aggravates the already inflamed lid. In treating, always scrub the lashes first with some colloidal preparation, and after all the scales are removed from the hair follicles, in mild cases, rub a three per cent ammoniated mercury into the lashes. As a rule, after several treatments most of the symptoms will have disappeared. If there are ulcerations after the scales are removed, gentle scrubbing of the lashes with four per cent Ag NO<sub>3</sub> is indicated. For home use, an application of three per cent ammoniated mercury is satisfactory.

Around 40 there appears a disease which is responsible for far too much of our present blindness. It could easily be avoided if the internist, optometrist, and perhaps the "eye man" were more cautious and on the lookout for symptoms. This dreadful disease is glaucoma. Glaucoma in the acute or later stages is relatively easily diagnosed, but, unfortunately, even if diagnosed the loss of vision, as a rule, is so great that very little can be saved. Therefore, early diagnosis is all important. An early and suspicious sign is the patient's complaint of not being able to get satisfactory glasses. He has usually made the rounds of optometrist and oculist and still complains of not feeling comfortable with his present correction. Although the patient has made these rounds he still may not be properly fitted. If his glasses are right, a careful study of his visual fields is indicated.

When we discuss visual fields, the form field, as a rule tells us little in the early cases. When a defect is noted in the form field the changes in the nerve are already marked. The important early field findings can only be demonstrated on the tangent screen because of the high magnification we are able to obtain of the area about the optic disc.

One cannot always depend too much upon taking the intraocular tension. The tension taken during the day may be within normal limits and yet our field findings are definitely

those of glaucoma. This is easily understood when we realize that the tension is highest during early morning hours.

Strange as it may seem, the ophthalmoscopic examination in the early stages may be entirely negative, and yet glaucoma may be definitely diagnosed by the field studies. The more common symptoms of the later stages of glaucoma, such as halos and acute pain, are too well known to elaborate upon at this time. However, if the diagnosis has been definitely made, operative procedure is usually indicated except in those few cases which can definitely be controlled by myotics. The great danger in permitting patients to continue with myotics is that they may be lost track of, and after a while they usually discontinue their medication. This is easily understood because in the early stages of glaucoma the patient is not convinced that benefit is being derived from the medication.

There is a point of differential diagnosis of the red eye that should be mentioned here. A patient often presents himself to a physician with the complaint of a red eye which has been painful for 24 hours or so. At first sight the physician thinks of conjunctivitis, iritis, or glaucoma. Strange as it may seem these may present similar pictures. By the instillation of several drops of adrenalin into the cul-de-sac, and allowing several minutes to elapse one may frequently differentiate between conjunctival inflammation, which will always blanch, while the deeper vessels still remain definitely engorged in an iritis. This also includes iridocyclitis, scleritis, or acute glaucoma. The differential diagnosis between acute glaucoma and iritis, however, is usually low, while in glaucoma it is high. Glaucoma may follow iritis. Whenever it gets to this stage, or perhaps even sooner, it is advisable to have an oculist handle the situation.

Floating spots is a frequent complaint in older persons. Always be suspicious of cardiovascular disease, although gastrointestinal disturbances may present the same symptom. These spots, however, are usually transient, and we rarely find any actual changes in the vitreous. The ophthalmoscope will often aid us in our differential diagnosis by the fact that it will show if they are actually present or not. Floating spots will also occur from uveal tract inflammations. Unfortunately, even if the eti-



ology regarding the cause of these floaters has been determined, little can be done. Although some may disappear they usually have permanent effect. By impressing upon the patients the importance of controlling the etiology in order that it may not become worse, we may more easily help them to reconcile themselves to what has occurred. Myopes frequently complain of floating spots due to actual changes in the vitreous. However, we must also be on the lookout for a systemic cause for the complaint. Unfortunately, nothing more can be done for this.

Possibly there is no condition more frequently mis-diagnosed and concerning which more erroneous impressions are conveyed than that of cataract. A cataract is an opacification of the crystalline lens. It may occur from infancy to the octogenarian and even beyond. Whenever we find it in early life, that is, before 40, with no history of trauma, we always look for inflammatory conditions of the eye as well as general systemic disturbances. Even in cataracts after 40, we must consider the same etiological factors, before diagnosing the senile type.

Cataracts may be removed during any stage of their development. We wish to impress this point. Many active individuals have been held back from an operation just because of the old idea, unfortunately still frequently held, that a cataract must be mature before it can be removed. Our indication for the removal of a cataract is when an individual can no longer follow his particular vocation. The mechanic will require surgery much sooner than the watchman.

As far as medical treatment for incipient cataracts is concerned, many preparations have been advocated, and it is questionable what benefit they do have. In the past year or so, since the vitamin rage has been with us, the use of haliver oil has been strongly recommended. We prescribed haliver oil internally until one of our patients misunderstood the directions and put the haliver oil in his eye. He was so elated because of the marked improvement of his vision that we have been trying the local application combined with prescribing the oil internally. We are in no position to state whether it is beneficial or not. However, there can be no harm in its local use.

## TREATMENTS

We will mention a few points about the general treatment of eye conditions as they come to the attention of the general practitioner. If we are sure that we are dealing with an acute conjunctivitis, the use of 10 per cent argyrol, silvol, or neo silvol, or one per cent mercurochrome is advocated. In addition, we always like to prescribe a weak zinc solution which is used about five minutes after one of the previously mentioned medications. The prescription we prefer is: Zinc sulphate, grains one-half; acid boric, grains five; adrenalin chloride, minims five, to about one half ounce of aqua distillata. If we are dealing with the allergic type of eye, it is advisable to add two drams of estivin to the prescription. This particular preparation gives almost immediate relief. The reason we like to use a combination of prescriptions in conjunctivitis cases is because, as a rule, we are dealing with a mixed infection, and this combination of treatment is usually satisfactory. We use a colored preparation as it aids us in determining whether or not the tear passages are open without going to all the difficulty of actually irrigating the tear sac. It is most important to be sure that there is good drainage; otherwise you are bound to have a delayed recovery as well as recurrent attacks of conjunctivitis. As far as office treatment is concerned, a .25 per cent of silver nitrate, or one per cent zinc is about all that is necessary. In dealing with an acute purulent conjunctivitis, the actual swabbing of the conjunctiva of the lids with four per cent silver nitrate solution, neutralized in one-half minute with salt<sup>1</sup> is efficacious. The same form of treatment is beneficial for all follicular types of conjunctivitis.

As far as the treatment of styes is concerned, they almost take care of themselves by spontaneous rupture. The important thing with an individual who has recurring styes is to investigate the possibility of a refractive error or a general asthenia.

The Meibomian cyst is easily differentially diagnosed from the styte in as much as the cyst is rarely an acute condition. The patient complains of a small lump that has been on the lid for some time. The treatment indicated here is to open and thoroughly curette the sac. The treatment is painful unless about one-half a cubic centimeter of two per cent novocain is

injected through the skin over the cyst, and then thoroughly massaged to insure infiltration. Precede this by the instillation of several drops of cocain and the cyst can be opened through the conjunctiva, painlessly. After all the contents have been removed, fill the cavity with thromboplastin, and keep the chalazin forceps on for several minutes to prevent a hematoma, which causes delayed healing; it may also be the nucleus for a dense scar.

Most foreign bodies of the cornea can be removed, after the instillation of several drops of four per cent cocaine, by means of a moistened cotton swab. This precludes much of the trauma which is frequently due to instruments. Of course, if this is not successful, the spud must be used. It is always important that all corneal strain be removed after the foreign body. After the removal of a foreign body instill a mild antiseptic, such as one per cent zinc, or mercurochrome. Most important is the instillation of a bland anesthetic such as holocain or nupercaine. The injured eye should be covered with a pad.

A penetrating injury of the bulbus demands the services of a specialist. However, the instillation of an antiseptic solution followed by a bland anesthetic ointment and a pad are indicated until further consultation can be obtained. An injection of some foreign protein is always indicated. This may prevent a panophthalmitis. We prefer 10 cubic centimeters of milk which has been brought to a boil, and then injected into the buttocks. Although the injury is in the eye, if there are any indications antitetanus serum should be given.

In the treatment of iritis or cyclitis the general treatment is just as important as the local. In addition to foreign protein injections heavy doses of salicylates are practically always indicated; in severe cases even the intravenous injection of sodium salicylates should be employed.

In dealing with acute glaucoma, immediate relief of pain can be obtained by the intraorbital injection of one cubic centimeter of two per cent novocain. The site of injection is between the inferior and external rectus, just above the floor of the orbit. The needle should be inserted about one and three-fourths inches before the fluid is liberated. The reason for this particular site is that the ciliary ganglion is located in that vicinity. Very rarely are you

apt to obtain an intraorbital hemorrhage following this injection. This requires a firm pressure bandage, and the condition will rapidly subside.

Treat a chemical burn with copious irrigation, using ordinary water or saline. This holds even with a lime burn. If you know the exact chemical, it is, of course, better to use a neutralizing fluid, but fortunately, we do not always have access to the neutralizing agent. For a lime burn a freshly made solution of two per cent neutral ammonium tartrate should be used as soon as obtainable. This may even be continued several drops three times a day. Whenever there has been an erosion of the conjunctival surfaces use either castor oil or liquid petrolatum—freely. The lids should be everted and pulled away from the bulbus several times a day; otherwise a symblepharon is likely to develop.

Regarding fundus examinations: It is extremely difficult, even for the man who is examining eyes constantly, to get a complete picture without dilation of the pupil. The safest mydriatic for the general man to use is a one per cent solution of euphthalmin. One drop will usually give sufficient dilation to accomplish the purpose of the ordinary examination. It should always be remembered that it is necessary at the completion of the examination to instill a one per cent pilocarpine solution, and if the patient is over 40 years old he should not be permitted to leave until the pupils are back to their normal size, even if it is necessary to repeat the pilocarpine. If there is any inflammation present in the eye it is not advisable to dilate the pupil, as glaucoma may be present.

We have presented a few of the high spots, and hope that at least one or two of them may be of some aid in general practice.

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## BOOK REVIEW

**HOSPITAL SERVICE IN THE UNITED STATES:** Fourteenth presentation of Hospital Statistics by the Council on Medical Education and Hospitals of the American Medical Association; 1934 Census of Hospitals; Hospitals Registered by the American Medical Association; Reprinted from the Hospital Number of the Journal of the American Medical Association; March 30, 1935; Price \$.50.

This reprint contains a vast amount of material upon the hospitals of the United States; superintendents of hospitals and many physicians will be especially interested in it.



# A CENSUS OF CASES OF SYPHILIS AND OF GONORRHEA UNDER MEDICAL CARE IN NEW MEXICO

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A census of cases of syphilis and gonorrhea under medical supervision in the State of New Mexico was made by the United States Public Health Service in cooperation with the New Mexico State Bureau and the American Social Hygiene Association as a part of the broader study of health conditions and medical services in that state. The study followed the fairly uniform procedure which has been carried out in other areas comprising approximately one-fourth of the population of the United States.

## DEFINITION OF TERMS

Throughout this report the term "case rate" will deal with the number of cases per 1,000 population which are under treatment at any given time by authorized sources of treatment. "Incidence" will represent the number of new infections which come to treatment during the year, new in the sense that they have not before been treated by qualified source for the present infection. It is to be observed that the figures given cannot be taken to represent the actual case rate and incidence of these diseases, since experience indicates that generally only a small proportion of the existing cases at a given time are under medical care.

The term "early" applied to syphilis means a duration of one year or less, and "late" of more than one year. For gonorrhea the term "acute" is applied to all cases in which the duration of the infection is three months or less, and "chronic" to cases of a duration more than three months.

## METHOD OF SURVEY

A questionnaire was sent to each authorized treatment source. Data were requested on the number of patients under observation or treatment as of December 1, 1933, and on the number who came in with a new infection of either

syphilis or gonorrhea during the month of November, 1933. The reports were to indicate color and sex and the stage of infection or admission.

## SOURCE OF REPORTS

There were on the list 538 medical sources to which the questionnaire was sent. Of these 142 were eliminated because deceased, not practicing, retired, unclaimed, et cetera. Forty-six did not reply. Of the 350 reports received, 196 reported having one or more cases of venereal disease under medical care. A total of 1,831 cases were reported under medical supervision on December 1. Of these, 87.1 per cent were in the hands of physicians and 12.9 per cent in hospitals, or other institutions.

## PREVALENCE OF VENEREAL DISEASES UNDER TREATMENT

In Table I note that of the 1,831 cases of venereal disease reported, 1,011 are syphilis and 820 are gonorrhea. These figures do not represent the proportionate prevalence of syphilis and gonorrhea but reflects that a smaller proportion of cases of gonorrhea than of syphilis seek medical attention. It is estimated that in the general population gonorrhea is two to three times as prevalent as syphilis. Of the number of cases reported 1,672 were white, 106 were Indians, and 53 were Negroes. The case rate for syphilis and gonorrhea under treatment in New Mexico was 4.3 per 1,000 of the population. This may be compared with a prevalence of 4.8 per 1,000 in a surveyed county in Pennsylvania, and of 7.5 per 1,000 for the total surveyed areas in the United States. In New Mexico the rate for syphilis was 2.4 per 1,000 of population and for gonorrhea 1.9 per 1,000, as compared with 2.4 for syphilis and 2.4 for gonorrhea in the Pennsylvania County and compared with 4.1 for syphilis and 3.4 for gonorrhea in the total surveyed territory in the United States. Recalling that this census, of cases, records only those brought under medical care and not the actual number of existing cases, it is probably fair to assume that the comparatively low rate in New Mexico reflects the general inaccessibility of treatment sources, the limited economic status of many patients and their lack of understanding of the seriousness of these diseases.

## INFLUENCE OF RACE AND SEX

In Table II we note interesting comparisons. Among both the white and the Negro patients

the males have a much higher rate of syphilis and of gonorrhea than the females, whereas among the Indians the males have a higher rate of gonorrhea than the females, but the females have a distinctly higher rate of syphilis under medical care—2.3 as compared with 1.5 for the males. It may be noted that the Indians have a somewhat lower rate of syphilis and of gonorrhea than have the whites. The very much higher rate of both diseases among the Negroes is in accord with the common findings in the United States. In New Mexico the syphilis rate is 2.4 and for gonorrhea 1.9 per 1,000 among the whites, as compared with 9.8 and 8.8 per 1,000 respectively for Negroes.

#### STAGE OF INFECTION ON ADMISSION

A slightly higher proportion (Table II) of males, and a lesser proportion of females seek treatment for syphilis in its early stages (within one year) than in its late stages, whereas, about twice as many males and females seek treatment for gonorrhea in its acute stage (within three months) as in its chronic stage. Of the Indians of both sexes and of the Negro males, however, a much larger proportion delay seeking treatment for syphilis until the late stages than come under treatment in its early stages. This is a serious fact in its relation to the spread of the disease and in its disadvantages in reference to cure. Of the Negro females a larger proportion sought early treatment for syphilis, whereas, the larger proportion of them delayed treatment for gonorrhea to the chronic stage.

#### ANNUAL INCIDENCE

The method of determining the incidence rate was to take the number of fresh cases reported for the month of November and to multiply it by 12, assuming, in accordance with experience, no marked seasonal variation.

The detailed incidence rates are shown in Table III. The annual incidence rate for syphilis per 1,000 population in New Mexico was 7.9, and for gonorrhea 9.8. In comparison, the incidence rates for the total surveyed territory in the United States is 3.5 for syphilis and 5.7 for gonorrhea. It is observed that the incidence rate for the whites follows closely the combined incidence for all races. Among the Indians the syphilis incidence is markedly lower than for the whites of both sexes. The gonorrhea incidence rate for Indian males is considerably

higher than that for the white males, but for the females the rates are the same for both races. The incidence among the Negroes, based on the examinations of the limited number of 56 persons, reaches the enormous rate of 63.2 per 1,000 for syphilis and of 46.3 per 1,000 for gonorrhea. The syphilis incidence among Negro women rises to 81.9 per 1,000.

It is noted that of the whites both males and females sought treatment for syphilis in its early stages about twice as frequently as in its late stages. White males sought treatment for gonorrhea four times as frequently in its acute stage as they did in the chronic stage, while the white women came only one and one-half times as frequently in the early stages.

Of the Indians all the males came to treatment for syphilis in the early stages, and the females twice as frequently in the early as in the late stage. In regard to gonorrhea the males sought treatment in the acute stage eight times as frequently and the women five times as frequently as in the chronic stage.

Of the Negroes, the males sought treatment for syphilis in its early stages about twice as frequently as in the late stages, whereas, the females deferred treatment about a third more frequently to the late stages. As to gonorrhea, the situation is reversed, the Negro males seeking treatment about 2.5 times more frequently in the chronic as in the acute stage, while the Negro women sought treatment with the same frequency in the acute as in the chronic stages.

In summary: The males of all races and the white and Indian females sought treatment for syphilis more frequently in its early than in its late stages, while the Negro females deferred treatment more frequently to the late stages. In regard to gonorrhea, the white and Indian males and Indian females came to treatment much more frequently in the acute than in the chronic stage, whereas, the Negro males mostly deferred treatment to the chronic stage and the white and Negro women came to treatment with nearly equal frequency in the acute and chronic stages.

#### TOTAL CASES IN PUBLIC INSTITUTIONS AND IN PRIVATE PRACTICE

Table IV shows the distribution of the cases of syphilis and gonorrhea under treatment in private practice and in public institutions.

Eighty-three per cent of the males and 81 per cent of the females having syphilis are in



the hands of private physicians, while 17 per cent of males and 19 per cent of females are in the care of institutions. Of those having gonorrhea, 93 per cent of males and of females are in the hands of private physicians, while seven per cent of each sex are in the care of institutions. This unusually large proportion of cases in the hands of private physicians is probably accounted for by the exceptional unavailability of clinical facilities. In contrast to the high percentage of white and Negro cases in the hands of physicians, the Indians show only 39 per cent of male and 38 per cent of female syphilis cases, and 61 percent of male and 62 percent of female gonorrhea cases in the care of private physicians—the rest being in the care of institutions.

In order to grasp the significance of the problem of syphilis control in New Mexico we may refer again to the prevalence of syphilis of 4.3 per 1,000 of the population under medical care, or 0.43 percent in round numbers less than half of one percent. Contrast this with the prevalence of 5.8 per cent of positive blood tests in 1,646 men, women and children in Mora County shown in another section of the health survey. Assuming that this prevalence rate holds for the entire state, it means that only about one-thirteenth of the existing cases in the state are under medical supervision. So long as so large a proportion of cases escape attention, the problem of syphilis control remains a formidable one.

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## EXTERNAL OTITIS

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In this discussion I shall consider the more common inflammatory diseases of the ear canal.

The anatomy of this part being peculiar, and since it has a definite relationship to its diseases, I wish to call particular attention to several points concerning it.

The external auditory canal is about 2.5 cm. in length. The external half is cartilagenous, the remainder bony. Viewed antero-posteriorly it is slightly curved, the convexity being upward. Viewed from above it passes first backward then forward, forming an angle be-

fore the bony wall is reached. It narrows toward the bony juncture then enlarges to the drum. This narrowing traps many foreign bodies that enter the ear, and makes their removal more difficult if they pass the constriction. The floor is longer than the roof, due to the drum inclining at an angle of about 140 degrees. The lower part of the canal is cartilage, the upper part fibrous. In this cartilagenous portion are two horizontal breaks, the incisurae santorini, which are important from a clinical standpoint because a deep seated furuncle may discharge into the parotid gland, or a parotid abscess may discharge into the canal through these slits. Below and in front is the temporo-mandibular joint; posteriorly is the glenoid lobe of the parotid gland. The upper posterior portion of the bony wall is thin and is encroached on by the mastoid cells. This portion is important from the clinical standpoint because cholesteatoma of the antrum often break into the canal; and infiltration of the periosteum and sagging of this segment occurs in mastoiditis.

The canal is lined with skin. The cartilagenous portion contains sweat glands, sebaceous glands, and hair follicles, the inner portion containing fewer than the outer. At the bony cartilagenous juncture are special glandular elements, such as the ceruminal and large sebaceous glands. These play an important role in diseases of this location. The skin is thin and lies almost directly upon the perichondrium, there being little connective tissue between. This firm attachment, and the fact that the skin contains very fine and sensitive nerve endings, accounts for the severe pain that accompanies inflammatory conditions.

**FURUNCULOSIS:** This is probably the most frequent disease of the external auditory canal. It usually develops at the junction of the pinna and the canal. There is a marked reaction in the follicles, especially if more than one is involved. The process may be mild with only slight local reaction, or it may be so severe that the canal is completely closed and may even extend to the point of sequestration of the bony canal, or may rupture into the mastoid process or parotid gland. It is an extremely painful condition with the symptoms usually out of proportion to the findings. Jaw movements are usually restricted. The most im-

portant diagnostic finding is severe pain from manipulation of the auricle.

Often the differential diagnosis between furunculosis, otitis media and mastoiditis, and even parotitis is difficult. Some cardinal points of differentiation are: In furunculosis there is little, if any, change in hearing; in otitis media and mastoiditis it is usually reduced. Manipulation of the auricle, or pressure on the canal, produces severe pain in furunculosis and in otitis media and mastoiditis usually none. In furunculosis the canal is distorted; in otitis media and mastoiditis it may be constricted but not distorted. Direct pressure over the mastoid elicits no tenderness, in furunculosis and in mastoiditis tenderness. In furunculosis a discharge is present only if the furuncle has been opened or ruptured. In otitis media and mastoiditis the discharge comes through the drum and is usually profuse. The drum, if seen, is normal in furunculosis. Temperature and blood picture are more nearly normal in furunculosis than in otitis media and mastoiditis. The groove behind the ear usually remains apparent in mastoiditis and obliterated in furunculosis. X-rays may show clouding but no cell destruction in furunculosis, while in mastoiditis there is cloudiness plus destruction in cells.

In parotitis there is diffuse swelling over the gland with encroachment on the canal, without any pointing or tenderness. Hearing is unaffected and there is a dryness on that side of the mouth.

Not infrequently otitis media or mastoiditis and furunculosis co-exist. Patients also are observed in which there is a swelling on the posterior wall with all the signs and symptoms of a simple furuncle, the drum appearing normal. Failure of the usual treatment plus further examination, reveals the trouble primarily in the mastoid.

Treatment: Methods of treatment are almost as numerous as the physicians that treat the condition. The patient, however, is usually most interested in the pain, so that must be controlled by the use of aspirin, pyramidon, and in cases an opiate. Furuncles should not be incised before liquefaction has occurred. The use of ethyl chloride will minimize the pain. In my experience a pack of ichthyoldine, neosilvol in glycerine, or phenol in glycerine accompanied by the dry heat of a 500 Watt

Mazda, or the infra-red lamp, has been the most effective means of controlling the pain and swelling. This is followed by a thorough drying of the canal. The hot water bottle, or electric pad, is used continuously at home. This procedure is followed both before and after liquefaction of the furuncle. Others report good results using stanoxyl<sup>1</sup>, the acetate of aluminum, tin ionization<sup>2</sup>, and stanus<sup>1</sup>. Bacteriophages and autogenous vaccines have also been suggested.

In practically every text or article a hot moist pack, or irrigation with solution has been advised. All of us are familiar with the condition of our hands following continued immersion in water, or following an operation in which rubber gloves have been worn. The epidermis becomes wrinkled, pale, devitalized even to the point of maceration and desquamation of the external layers. Compare now the friction resisting cornified epithelium of our hands with the soft specialized lining of the canal, and conclude that, by the douching and packs, we have prepared an excellent media for bacterial growth and spread of the infection to adjacent glands and follicles.

TANK, SWIMMING POOL, or BEACH EAR is the outstanding example of what occurs when water is allowed to remain too long in the auditory canal. This causes maceration of the tissues followed by itching, which the patient tries to relieve by scratching the canal with any available small instrument, thus abraded the epithelium and giving the infecting organism an entrance into the tissues.

The symptoms and course of this condition are about the same as furunculosis. The treatment is the same, with special emphasis upon keeping the canal absolutely dry.

OTOMYCOSIS or FUNGUS INFECTION are more common in regions of lower altitude and greater humidity than here in El Paso. The entire canal may be filled with a moist dirty gray, brownish gray or almost black growth. Itching, stinging, burning and varying degrees of pain are the chief symptoms. Scales, crusts and flakes in the canal aid in making a diagnosis. Finding the spores and mycelium in a smear makes the diagnosis positive. At times, it is necessary to keep a culture as long as two weeks to find the spores. Removal of the scabs, or scales, produces bleeding which leads me to believe that these fungoids are endodermo-



phytons and grow beneath the stratum corneum.

In the treatment of fungus infections I again wish to stress the importance of the dry canal. The most common methods of treatment are those in which various solutions of ethyl alcohol and boric or salicylic acid are used. Many report favorable results using the Scott-Hill, or alcohol-acetone solution of mercurochrome. Some of these fungi have a remarkable tolerance for alcohol. The method of treatment that I have found to be the most satisfactory is as follows: The canal is thoroughly cleaned, using hydrogen dioxide, then dried, after which Castellani's solution is rubbed into the entire canal wall. Castellani's solution is composed of carbolfucsin, resorcin and boric acid in alcohol, digested in acetone. The canal is then dried under the infrared lamp. Later the stain is removed with 10 per cent solution of sodium hyposulphide. This is combined with the internal administration of potassium iodide, on the theory that it prevents the formation of more spores. The solutions of alcohol alone do not seem to penetrate the deeper layers as well as those containing acetone and carbolfucsin.

**ECZEMA:** The external auditory canal may be affected primarily, by extension from the face, scalp or auricle, or be secondary to a chronic discharging middle ear. It may be acute, sub-acute or chronic.

The erythematous type is the most common. It is characterized by hyperemic patches, of variable size and number, associated with itching and burning. The skin is harsh and dry, of reddish color with a violaceous or yellowish tinge. There is some thickening with scaling and a tendency toward oozing. The papular, vesicular and pustular types are seen less frequently.

The treatment includes both local and general measures. Attention should be given to diet, hygiene, proper elimination, and the determination of any allergic condition. Calamine lotion or ointment, or an ointment containing crude coal tar, zinc oxide, corn starch and petrolatum should be applied locally. If the eczema is due to a discharging middle ear, or if it is an extension from the face, scalp or auricle, the primary focus must be treated. Again the canal must be kept dry, especially if there is oozing. There have been some fa-

vorable results reported from the use of x-ray, radium and the quartz light.

**ERYSIPELAS** usually is seen following a mastoid operation. This causes much worry at times because of the initial chill followed by the rapid rise in temperature, suggesting a brain abscess or sinus thrombosis, before the characteristic swelling and red line of demarcation appears. This is possibly one exception when moist dressings may be used on the external ear. The area should be painted with ichthyol collodion and hot magnesium sulphate packs applied. Combined with the administration of anti-erysipelas serum.

**PRURITIS** is one of the most distressing and annoying conditions seen. The patient is constantly bothered by the itching, and the physician has no positive findings, except possibly a traumatized canal from scratching. The etiology is obscure; it may be purely nervous, or it may be from a general condition such as hypothyroidism, or from allergy. It should be treated locally with salicylic acid solution, Castellani's solution or calumine lotion. If the patient has an itching scalp, dandruff or any other skin disease, it must be attended to as it may be the primary focus.

**BULLAE:** During influenzal epidemics, and during attacks of the so called "flu", hemorrhagic blebs or blisters are seen in the canal. They are of various size and shape, may be single or multiple and may involve the drum. They are probably inflammatory in origin. When occurring on the drum, they should not be mistaken for a bulging and opened, because an infection may be introduced thereby into the middle ear. The treatment is that of influenza. The canal should be kept dry, two per cent silver nitrate applied topically, followed by heat under a 500 W. Mazda, or infrared lamp. Opening is indicated to control the pain or prevent enlargement of the blister.

In conclusion: There is a definite relationship between the anatomy and diseases of the external auditory canal.

Aqueous solutions are to be used with caution in diseases of the external auditory canal, and after their use the canal must be thoroughly dried.

Typical cases are usually easily diagnosed, but frequently they are complicated by co-existing infections, then an accurate knowledge of the anatomy and pathology are essen-

tial in making the diagnosis and instituting treatment.

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## GRANULOCYTOPENIA (A Case Report)

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A female school teacher, age 32, on April 16, 1934, developed severe aching, intense headache, sore mouth, fever and general malaise. She made no improvement, so on the 20th of April she entered the hospital; the diagnosis of granulocytopenia was then made on the basis of the blood findings. (For daily records on white cell counts, pulse, temperature, respiration, blood transfusions and pentnucleotide injections see table).

She had had eczema, hives, malaria (1907), measles, pertussis, mumps, chicken pox, furunculosis (1923), abscess on right kidney surgically drained (1914); frequent colds in late years for which she was given injections of respiratory vaccines; reduction of weight from 205 to 150 pounds (1929) by being put to bed and on careful diet, three molars extracted (1933), and a dislocated shoulder (1934). The shoulder was reduced by me in the road without an anesthetic per her request. She used allonal at night when she could not rest, but seldom took more than one or two tablets a week, which she continued for a few months. Shortly after the accident, she began to feel badly.

She had marked pallor, E.P. 100/62, pyorrhea moderate, tongue coated, whitish membrane on gums with sloughs as large as a quarter on the gums of the right lower incisors almost down to the root tips. On the right buttocks was a slough one-fourth inch in diameter, as though deeply burned by a hot iron.

In addition to eight blood transfusions of 4350 cc., eighteen injections of pentnucleotide, six of them of 20 cc and the others of 10 cc. each, she had two injections of white cell con-

centrate; she was encouraged to take large amounts of fluids all through her illness; her diet, except for the first two days, was liberal; infra-red light was applied daily to her chest and left arm and shoulder; bone marrow and spleen were given by mouth throughout the illness and during convalescence. The last injection of pentnucleotide produced a chill and fever. The third injection of pentnucleotide was followed by nausea for about 40 minutes.

After two days of treatment the neutrophiles jumped from nothing to 12 per cent; thereafter on three days neutrophiles were not found in the blood; after the ninth day of treatment the percentage of the neutrophiles increased steadily to 73 per cent—reached on the thirteenth day. The white cell count of 1000 on the first

DATE	WHITE B.C.	NEUTROPHILES	TEMP.	PULSE	RESP.	TRANSFUSION	PENTNUCLEOTIDE
April							
21	2000	0	103 <sup>2</sup>	94	24		
22	3000	0	104 <sup>3</sup>	116	26		20cc
23	1100	12%	103 <sup>4</sup>	104	24	500cc	20cc
24	3000	12%	104 <sup>3</sup>	118	28	550cc	20cc
25	1000	12%	104 <sup>2</sup>	108	22	550cc	20cc
26	1000	8%	104	98	28	550cc	20cc
	4pm 1500	0					
	7pm 1600	4%					
27	1800	0	103	96	24	550cc	10cc
	pm 1100	12%					
	pm 1200	12%					
28	1600	4%	103 <sup>2</sup>	112	26		20cc
	pm 2020	6%				600cc	10cc
	pm 2100	4%					10cc
29	1600	16%	103 <sup>2</sup>	120	42		10cc
	pm 2200	0				500cc	10cc
	pm 2000	10%				2ccWC	10cc
30	2200	11%	103	108	32		10cc
	pm 2100	13%				2ccWC	10cc
	pm 2600	14%					

May							
1	9am	2700	36%	102	112	40	10cc
	1pm	4000	40%				10cc
	5pm	4100	40%				
	9pm	4200	40%				
2	9am	4400	48%	103 <sup>2</sup>	96	34	10cc
	1pm	6500	49%				
	5pm	6400	54%				
	9pm	7500	52%				
3	9am	7500	59%	100	92	40	
	1pm	8000	58%				
	9pm	8300	58%				
4	9am	8300	60%	99 <sup>2</sup>	96	40	
	1pm	9000	60%				
	5pm	10000	61%				
	9pm	10000	70%				
5	9am	11500	70%	87	92	28	
	5pm	11900	71%				
	9pm	11750	70%				
6	5pm	10000	68%	98 <sup>2</sup>	80	32	
	9pm	12000	67%				
7	5pm	11900	68%	99 <sup>2</sup>	100	32	
8	9am	10500	73%	98 <sup>2</sup>	96	32	



day rose steadily to 12000 on the 16th day of treatment. Codeine, 25 grs., was given on the 3rd and 4th days of treatment just before and after the transfusions to make her more comfortable.

The blood transfusions undoubtedly kept the patient alive—at least she said she felt better for hours after each transfusion—until the pentnucleotide, which I believe started the improvement, began to cause an increase of neutrophils. White cell concentrate was given only twice and as improvement had already begun, just what part it played in the recovery cannot be told. The part that the allonal may have contributed in the etiology of this condition in this case is not clear.

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## PHYSICIANS' CAPITAL INVESTMENT AND DISEASE

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Dr. G. G. Thornton of Lebanon, Kentucky advises physicians to give honest efficient service and to charge for it with due consideration for the time and money spent in securing a medical education. He explains to his patient, for example a farmer, who may think that his charges are too high as follows: You have your money invested in lands, stock, farming utensils and etc., and if you die your wife may sell what you have and in this way provide for her future; if I die my capital investment which is in education, books, medical journals, office fixtures, and equipment is either gone or practically worthless to my wife. My living depends upon my health, eyesight, hearing, right mind, and disposition to work, not just all day, but all night and every day, and not to be my own man, but somebody else's anytime, rain or shine, cold or hot, night or day, tired or rested.

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### IS SOCIALIZED MEDICAL INEVITABLE

Dr. Morris Rosenthal writing in the New York State Journal of Medicine for May under the title of "Why Socialized Medicine is Inevitable" says that there are a number of forces that are steadily, definitely, pushing us toward socialized medicine. So long as the workers were making good wages and were able to employ physicians and nurses and purchase medicine and hospital services when their families were ill, they were reasonably

contented. Then too in many places the employers furnished medical service. Under existing conditions the burden of illness can scarcely be met. Workers are naturally discontented. The workers know further that by collective action, pooling of funds, and by insurance they can make provision against financially burdensome illness.

Another force which is working us toward socialized medicine is the incorporation into the political platforms of planks relative to socialized medicine. The politicians see the opportunity and put forth for the consideration of the workers, the advantages that they will have under a system of socialized medicine. Socialized medicine has been used even before the time of Bismark as a lure by politicians for political advancement.

A large part of the medical profession has, for many years, had such low incomes that many physicians are actually in favor of socialized medicine as a solution of their own economic ills. He says that 40 per cent of the physicians, who had been in practice from five to 35 years in New York City, at the time of our greatest prosperity had a gross income of less than \$3,000 a year.

Socialized medicine is not a long step to be taken as the state has already provided care for the tuberculous, the mental, the contagious, and the genito-urinary, diseases. The state too has already provided for examinations of school children, prophylactic medicine, public hygiene, water supply, disposal of garbage, etc. State medicine is but one part of a great social movement and will be swept into being along with other social reforms. In the changes that come the profession will be regimented with a central bureau and payment for the services will be from a high central source. The burdensomeness of these bureaus to us will depend upon our own actions. We can mold these bureaus so that they will be serviceable to the patients and fair to ourselves. If we fail to meet and control the politicians they will walk all over us and our patients and all will suffer.

He goes on to say that the public will have its doctors as it has its teachers, policemen, firemen, etc. The ridiculously low fee now paid by the government to doctors, the limitation of visits, etc. are cited as examples of

(Continued on page 260)

# Southwestern Medicine

Printed by THE A. C. TAYLOR PRINTING CO., Phoenix, Arizona  
Published monthly for the Board of Managers of the four constituent societies.

VOL. XIX.

JULY, 1935

No. 7

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## "NUMBO JUMBO", INSURANCE, AND YOUR STATE SOCIETY

We condense from the Detroit Medical News of April 22, 1935, the following: Those demanding state medicine seem haplessly unaware of the major economic situation when attempting to magically, presto-chango, convert the poverty of unemployment into affluence to pay insurance premiums which in turn will pay medical costs. The believers in medical economic "numbo jumbo" should face the facts that the problems of medicine in so far as the economic phase is concerned is merely a part of the major economic problems of the country.

To attempt to solve the problems of medicine without regard to the larger and more inclusive economic situation is about as intelligent as to try to control the temperature of a seriously ill patient in an epidemic and neglect the larger problem of sanitation and hygiene.

It is to be remembered when many persons are calling for action in one specific direction that those who live in the shadow and the largess of the dominating political party can think usually only within the limits prescribed by the party. One may be a professor or even a regent and yet be incapable of fearless honest thinking when masters of the party have spoken.

Various and fantastic insurance schemes have been suggested; one holds that the insurance can best be provided by private corporations. Would these private insurance companies have salaried doctors? Or how would the

insurance companies administer the practice of medicine?

A state may run its own insurance company. In such an event the ultimate board of directors would be the State legislators. The doctor that knew the most important "poobah" would have the ranking position in medicine and he who knew the governor would be the chief consultant, diagnostician, and surgeon all rolled into one.

Or again the medical profession might set up and run an insurance company; and "this listens good if one is a good listener and follower", but there is a lack of cohesion in the medical profession and an absence of a straw-boss, or put in another way every physician wishes to lead and not to follow.

Along with insurance schemes to take care of sickness there must be unemployment insurance and an insurance to pay the insurance premium when a person is unemployed. "Softly, softly, and tut tut! We solve this problem by ignoring it."

When we think of what is tolerated in the European nations, it certainly would not be liked nor accepted by Americans who do not have the traditions of the "peasant and peon". "People in other lands are satisfied to take baths after the Spring thaw", but Americans demand bathtubs and indoor plumbing as necessities.

It would seem thoroughly logical that along with the solution of the ills of the world, the medical economic phase will probably be best solved if let strictly alone.

As we have said at other times, and this is not a part of the "numbo jumbo" editorial,



give every wage earner a job and an adequate wage (not a "dole") and the medical economic problem along with other major economic problems is solved.

### ROSENWALD FUND ANNOUNCES PLAN FOR SOCIALIZING MEDICINE.

The trustees of the Julius Rosenwald fund have set aside \$284,000 to be expended during the fiscal year beginning July 1st for work among colored persons and for furthering the socialization of medicine. Edwin R. Embree, president of the fund, stated in a recent interview with the Chicago Tribune, that they purposed to place competent medical service and hospitalization within the reach of persons of moderate means. They now have 344 plans concerning medical care in their office and they state that several of these plans have been endorsed by the American College of Surgeons.

It is well for physicians to do what they may to acquaint the public with both sides of the question; one must not be one-sided in this matter. Before attempting to speak upon the subject before an organization a physician should secure reliable data from those who have made a study of the subject; having done that it is well to present these facts before as many clubs and organizations as possible. It must ever be kept in mind that the mere statement that every one should have the best medical care for any and all illnesses appeals to practically all persons as being thoroughly logical; along with this statement, however, should be the statement that every person should have enough good milk and other food. It would seem that if every person competent to labor was guaranteed a job, the problem of socializing medicine as well as securing plenty of food would be properly and quickly settled; it seems that this is really the answer to the question of socializing medicine.

### MEDICAL GRIEVANCE COMMITTEE

The Wisconsin State Medical Society had introduced into their legislature a bill creating a "Medical Grievance Committee" consisting of the State Health Officer, the Secretary of the State Board of Medical Examiners, and the Attorney General or his deputy. The purpose of having such a committee is that it may review the irregular practices of physicians in or-

der to correct them. At the present time the only penalty for irregular practices is revocation of the physician's license. There are minor offenses which should be corrected and for which perhaps there should be punishment, and the revocation of a license would be too great a punishment. The plan is that the committee shall devise methods of punishment and investigate practices which are inimical to public health before physicians get themselves involved into criminal practices. The revocation of a license can only come after a physician has committed a serious offense. New York State has such a Medical Grievance Committee.

### SOCIALIZATION OF BUSINESS

Business men are perhaps trained to keep their ears to the ground for distressing elements to their personal affairs more than are physicians. It has been noted by certain business men that a socialization of medicine may be precedent to socializing of industry and that business will be called upon to foot all the bills of any and all experimental schemes of this character. "Nation's Business" states editorially that on first thought ours would seem to be a backward country because of the lack of health insurance which has for years existed in many European countries. There is a great deal to indicate however that health insurance has been a step backward rather than forward; for health insurance has not lowered the mortality rate; it has not lowered the sickness rate; and it has not decreased the total costs of medical care, but in reality has increased it; there has been a definite deterioration in the quality of medical service and a retardation of medical progress; personal relations between physicians and patients, instead of being advantageous are actually being detrimental.

Nation's Business has apparently seen the light which is that State Medicine if it comes is but a fore-runner of regimentation of business of all sorts—especially of food, heat, clothing, and other essentials.

### PHYSICIAN WANTED

Hancock, Texas, a community of about 1500 inhabitants is in need of a physician. Free office space and other advantages will be afforded the first year.

### THE NATUROPATH LAW

Naturopaths will now be licensed to practice in Arizona. Persons suffering from beginning tuberculosis, cancer, diphtheria, diabetes and the like will fall into the hands of naturopaths who will keep hold of them until it will be too late to do anything for them and until their chances of being cured will be gone. Recognition, and therefore reporting, of contagious diseases will be tardy. Unenlightened and unsound advice on health matters will be given to the public. Every doctor knows perfectly well, and none better than Dr. Moeur, that this new law places in jeopardy the private and public health of the citizens of Arizona.

People have always looked to their physicians for advice in health matters, and they have always expected from the executive protection from legislative folly. When this bill was presented for executive consideration, it was not a matter of politics nor of party nor of personalities; it was a matter of protection of the public health. And how a governor who had made an honorable living in the life-long practice of medicine could fail to veto this pernicious menace to the public health when it came before him, is more than we can understand. It is our belief that in this matter Governor Moeur fell short of what is expected of a physician and of an enlightened executive.

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### Letter Column

We announced some time ago that we wished to have a letter column. We have the column but nothing to go into it. At least there have been but a few letters received. Our hope had been that the physicians of the Southwest would take advantage of this column to express their ideas upon live topics especially that of social medicine. There is no question but that the subject of medical economics is of vital interest to the medical profession; and it perhaps is of even far greater concern to the laity than it is to the profession.

To illustrate the significance of this last statement there is at least one community in the Southwest, if we are reliably informed, which is relying upon a cultist with nearly no medical training, for its practitioner of the healing art. This is lamentable. It is due to the fact that the income from the communities'

illness and accidents is inadequate to support a physician and pay interest upon the capital investment of his education. It may be necessary not only to pay interest upon what he expended for his education but he may be required to pay back the money he borrowed in order to acquire his education. The cultist is not burdened with a heavy debt for his education any more than he is laden with medical knowledge. The small community may support a cultist where it cannot support a doctor of medicine. The result is that any person afflicted with a serious malady or injury is taken to a physician at considerable distance and at considerable expense. This community therefore probably pays a great deal more for medical attention than if it were to build a small hospital and in addition subsidize a competent physician in order to get him there to take care of the ills of the community. The population there would then also need to be educated that there is nothing which can happen to them for which the cultist could care that the physician could not care for with greater or at least equal efficiency.

This has grown into an editorial on the medical economic question rather upon the "letter column". Surely there are many physicians who have ideas upon this and other great questions and those very ideas which you, physicians of the Southwest, are keeping concealed, locked up in your brains, may be the answer to some of the important problems of the day. May we have your ideas in letters?

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### New Mexico State Medical Meeting

The 53rd. annual meeting of the New Mexico State Medical Association was held in Albuquerque the latter part of May. The sessions were well attended, all being held in the Franciscan Hotel. The scientific and commercial exhibits were in the spacious lobby. There were two notable features of the meeting: The papers on the scientific program were almost all given by out-of-State men; the noon luncheons were served in three rooms in each of which took place a round table discussion upon a preannounced subject. A visitor or two in each case was asked to open the discussion upon the subject in question after which there were questions and discussions by various physicians in attendance at the luncheon.



The local physicians were omnipresent and seemed determined not to allow their guests to have a dull moment. The quality of the papers the readers will have an opportunity to judge; for the present let it be said that they seemed most meritorious. One feature that perhaps deserved criticism was that there was rather too much program for each session so that discussion from the floor was greatly curtailed or entirely eliminated. We gained the impression that the physicians of New Mexico as a group rank high in scientific attainments.

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#### DAILY NEWS BULLETINS FROM STATE MEDICAL ASSOCIATION

The Medical Society of the State of New York has a Public Relation Bureau whose duty it is to serve the press of the State in the interpretation of medical information of possible interest to the public. The accuracy of the information released is vouched for by the society; any physician quoted directly approves the statement and the society represents that he is qualified to speak upon the subject in question.

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#### BLOOD DONATION, A COMMUNITY SERVICE.

The Frank Luke Post of Phoenix has several blood donors—one number one, two number two, three number four, typed and thoroughly tested who are willing to give blood in emergencies where professional donors cannot be afforded. Probably in the course of time they will have several others to add to these groups. This is a unique community service and the Post is to be congratulated upon this helpful, often life-saving, service.

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#### COMMITTEES OF THE ARIZONA STATE MEDICAL ASSOCIATION

The members of the Public Welfare Committee are: Dr. W. O. Sweek, Dr. C. E. Yount, and Dr. Meade Clyne of Phoenix, Prescott and Tucson, respectively. The Medical Economics committee elected by the House of Delegates is: Dr. A. M. Tuthill, Dr. Clarence Gunter, and Dr. C. L. Wilson of Phoenix, Globe, and Winslow respectively. The Medical Defence committee as elected by the House of Delegates is: Dr. John Bacon, Dr. R. D. Kennedy,

and Dr. D. F. Harbridge of Globe and Phoenix. The contact committee with the Industrial Commission is Dr. C. R. K. Swetnam, Dr. A. C. Carlson, Dr. R. D. Kennedy, Dr. E. P. Palmer, and Dr. Meade Clyne from Prescott, Jerome, Globe, Phoenix, and Tucson, respectively. Dr. D. F. Harbridge of Phoenix is ex-officio member of all committees, and Dr. W. W. Watkins is secretary of the Industrial Commission Contact Committee. This last committee meets on the first Sunday of each month at the Westward Ho Hotel.

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#### "JOKIN' AN' JOSHIN'"

In the news column is an item relative to the organization of an eye, ear, nose, and throat division of the Maricopa County Medical Society. This is commendable. The secretary has issued what he calls bulletin number one for the Phoenix Eye, Ear, Nose and Throat Society and he entitles it "Jokin' and Joshin' ". We regret we haven't space to reproduce the entire bulletin, but we take the liberty of making a few short quotations:

"From time to time you will get notes of general interest, including medicine and special surgery, politics, news items and intangible tax reports, etc."

"A laymen met me on the street this morning and said: 'Doc, I see in the papers that you have formed a specialist society here, gee, that's fine. Are you going to raise your prices?' I told him no, but the main intention is to keep up in our line of work and promote more kindly feeling toward each other. I says 'down-right brotherly-love.' That fellow believed every word of what I told him. I could tell by the way he acted, and he said 'don't know much about you specialists, but, gee, them other birds (he meant the genreal men) sure do pour it onto each other.'"

"One of Bill Schwartz' FERA cases got sore at him because Bill refused to put his bifocal lenses in the frames upside down. I don't see why Bill should care, long as the patient was pleased.

"One of our general men called up one of our 'snoot group' not long ago and asked him if he would 'make a hole in one of his patient's septums'. These holes are sure easy to make and hard to cover; did you ever try one that you made? Better leave 'm alone unless they're pretty little."

"We're not going to have hardly any by-laws at all, but IF we DO have any they're all going to fall back on just one-man to man agreement. If a man can't keep one of THEM, well, we won't be able to keep him either."

"Your president and secretary both hope that every possible 'fracture of any moral nature' will be healed by 'first intention'! Our idea is to KNIT you."

"Hoping that you won't straighten any septums that ain't crooked." Am yours until we meet again."

We predict that this organization with Dr. Yandell's Jokin an' Joshin' will go a long way toward making better feeling among the members of this group.

### A COMMITTEE ON MEDICAL RELIEF REPORTS

The committee on medical relief of West Virginia reports that the physicians of West Virginia have had 14 months or more of experience doing medical work for those on relief. It seems from a reading of the article that a considerable per cent of their physicians have been willing to participate in giving medical relief, though a certain number of the physicians objected to the plan and believed it was wrong. The chairman of the committee of the state says that his work with the Federal subsidies in West Virginia will help stay state medicine. It is the opinion of the committee that medical relief will be with them for some time to come. The committee has the following to say:

"As a matter of record, we should like to state we are no more in sympathy with the Federal Medical relief program than the average doctor. We view the whole situation with some alarm. And yet none of us can afford to ignore it, because if we do not maintain adequate control over the policies and expenditures of the relief program, we will soon find ourselves in a sorry plight."

### THE FLUORINE MENACE

We call attention to this for two reasons. There has been little, if any, information on the effects of fluorine to reach the medical literature and hence the medical profession of the United States cannot have been informed as to the effects of fluorine. The second reason is that fluorine is being used in insect sprays for fruits and vegetables which are subject to interstate shipping. Dr. Margaret Cammack Smith, professor of nutrition at the University of Arizona, has done a great deal of work to establish the relation of fluorine to mottling of teeth. In Arizona there are certain sections where the children uniformly have mottled enamel of their teeth. It has been found that there is fluorine in the drinking water in these sections. Dr. Smith has definitely established that a small amount of fluorine taken into the system will produce mottling in the teeth enamel of the young. If fluorine is used as an insecticide or for spraying fruits and vegetables, this, together with the harmful effects of fluorine should become general knowledge of the medical profession and scientists and others who have to do with the food supply of the world.

### EL PASO COUNTY MEDICAL SOCIETY

(Reported by Dr. L. C. Dutton, Sec'y)

Meeting was called to order at 8:00 p.m., by Dr. B. F. Stevens. Minutes of the previous meetings were read and approved.

Dr. Spearman, in conjunction with Dr. Leslie

Smith, presented a paper, "Alcoholic Pellagra." Dr. Smith showed lantern slides illustrating the case. Discussed by Drs. Dutton, Smith and Green.

Dr. Rennick and Waite presented a case of infant death. Resuscitation having failed after vigorous effort. At autopsy a large liver was found with, absence of the left diaphragm; intestines were in the left pleural cavity; left lung was collapsed; right lung had slight amount of air bearing tissue; there was a patent foramen ovale.

Dr. A. W. Multhauf made a motion that Dr. H. D. Huffaker's dues be paid by El Paso County Medical Society. Passed.

Dr. Robert Thompson made a motion that the meetings be held down town in the fall. This motion did not pass.

Dr. S. H. Newman offered the following resolutions:

No. (1). Resolved that our committee on relief work be instructed that it is to make no cuts in physicians' bills without first giving the physicians in question a hearing.

No. (2). Resolved that our committee on relief work be instructed to present monthly to this society a report on the amount of relief work done by every member participating, the amount of his bill and the amount allowed by the committee.

Meeting adjourned 9:30 p. m.

### Public Health Notes

J. ROSSLYN EARP, DR., P. H.

Director New Mexico State Bureau of Public Health

**MEASLES IMMUNE SERUM:** The usefulness of measles immune serum or whole blood depends greatly upon the time of giving. The accompanying chart is intended to aid the practising physician in choosing the time. For permission to reproduce the chart as well as for the use of their block we are indebted to the American Public Health Association.

Karelitz and Schick have shown that the results of seroprophylaxis in measles depends upon the intimacy of exposure as well as the time interval. Contact in the home is more intimate than in the ward of a hospital. In homes where crowded conditions prevail larger doses of serum must be given or the serum must be given earlier to secure protection or attention.

**LEAGUE OF NATIONS PLAN:** General practitioners may be interested in the plan, formulated by experts appointed by the Health Organization of the League of Nations and here reproduced, for the continuous treatment of early syphilis. The experts' recommendations are based on study of the records of 93 clinics in five European countries—a total of 13,198 case records.

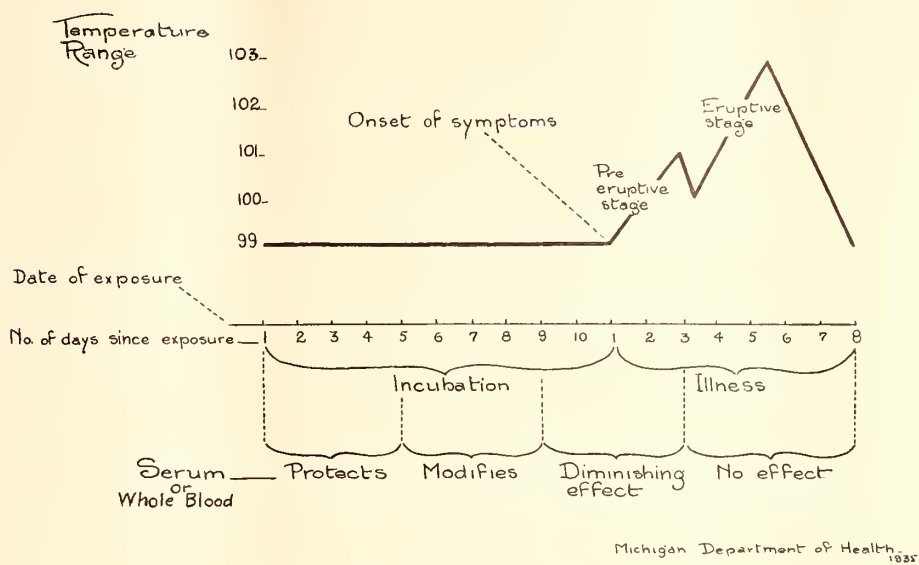
The use of insoluble mercurials intramuscularly is not recommended.

In cases of primary syphilis that remain seronegative throughout a minimum of five courses of arsenicals is to be given. Cases that at any stage give a positive Kahn or Wassermann test should receive the full treatment called for in the plan.

1. Karelitz, S. and Shick, B: Jour. A. M. A., 104, p. 991, March 23, 1935.



USUAL COURSE OF MEASLES



PLAN OF ALTERNATING CONTINUOUS TREATMENT FOR EARLY SYPHILIS

	"606" (gramme)	Interim treatment.	Serol. test.	
Day				1
1	0.3—0.6			"606" dosage for first 3 injections at level of 0.1 gramme for each 25 pounds (11.3 kg.) body-weight. Average subsequent dosage, 0.4 gramme, men; 0.3 gramme, women the fourth and subsequent injections in the first course at weekly intervals. In average patient, all lesions heal rapidly and blood serological reaction becomes negative during first course. If "606" cannot be used, substitute 8 to 10 doses 0.3 gramme silver arsenamine (silver salvarsan for women and 0.6—0.75 gramme for men.) This applies also to subsequent course.
5	0.3—0.6			
10	0.3—0.6			
Week				
3	0.4			
4	0.4			
5	0.4			
6	0.4			
7	0.4			
8		Bismuth, 4 doses, 0.2 gramme and K.I., or Ungt. Hg. and K.I.	1	If mercury is used: note overlap of 1 week at end of first and start of second "606" courses. At this point a few days without treatment may be dangerous. Neuro-relapse.
9				
10				
11				
12	0.4		1	"606" starts, Bismuth stops. Watch for protracted serologic reaction after first dose of "606." Try to prevent short lapses in treatment, especially at this early stage.
13	0.4		1	
14	0.4			
15	0.4			
16	0.4			
17	0.4			
18-23		Bismuth, 6 doses, or Ungt. Hg. and K.I.	1	Bismuth is better than mercury. Use if possible. Examine cerebro-spinal fluid if patient's cooperation can be secured at about this time. If found to be abnormal, continue or intensify treatment as required, re-examining fluid within six months.
24	0.4			
25	0.4			
26	0.4			
27	0.4			
28	0.4			
29	0.4			
30-37		Bismuth, 8 doses or Ungt. Hg. and K.I.		
38	0.4		1	
39	0.4			
40	0.4			
41	0.4			
42	0.4			
43	0.4			
44-53		Bismuth, 10 doses or Ungt. Hg. and K.I.	1	Note that bismuth or mercury courses are gradually getting longer—4, 6, 8, and now 10 weeks.
54	0.4		1	
55	0.4			
56	0.4			The average sero-negative, sero-positive primary or early secondary patient should have at least 5 courses of "606."
57	0.4			
58	0.4			
59	0.4		1	
60-69		Bismuth, 10 doses or Ungt. Hg. and K.I.		It is safer to finish treatment with bismuth or mercury rather than with "606."
70-122	Probation.	No treatment.	6-12	
123	Complete physical and neurological examination, lumbar puncture, and, if possible, fluoroscopic examinations of heart and great vessels.			

## NEWS ITEMS

Dr. G. T. Van Marel of Glendale, Arizona, has been made assistant County Physician for that district, vice Dr. Henri S. Denninger resigned.

Dr. Trevor G. Browne, of the Phoenix Clinic, who has been taking an active interest in the little Theater for the last several years, has been elected president of the Board of Managers for the year 1935-1936. He has played in a number of major productions.

Dr. and Mrs. Warner W. Watkins spent several weeks of May and June away from Phoenix. They attended commencement exercises of their daughter Merial, who graduated from Redlands University, Redlands, Calif. They have announced her engagement to Kenneth E. Grimm.

Dr. R. W. Hussong, who has been an interne at the St. Joseph's Hospital during last year and who is a graduate of the School of Medical Evangelists of Los Angeles, has been appointed City Physician of Phoenix to take office upon July 1. Dr. Hussong has specialized in public health work. The city commission and the city board have been studying the proposition of improving the health conditions of the city of Phoenix; their appointing a full time physician was one of their first moves toward improving health conditions.

Dr. M. I. Leff of Glendale, Arizona, has been named City Health Officer for that village and he has taken over improvements of city conditions and the removal of mosquito menace.

Dr. W. L. Brown of El Paso attended the annual New Mexico State Health Meeting in Albuquerque in May.

Dr. Harlan P. Mills of Phoenix must be proud of his son Roscot Harlan who received his doctor of Philosophy degree from the California Institute of Technology this spring. Roscot Harlan is a graduate of Phoenix High School in 1924 and Pomona College in 1928. His doctorate was attained in aeronautical engineering in which department he has been working part time.

Doctors H. T. Bailey and Mayo Robb have announced the dissolution of their partnership which has been in effect for a number of years. Dr. Bailey is away from Phoenix for the summer recuperating from his recent illness. He expects to re-enter practice when he returns this fall.

Dr. R. J. Stroud is representing the Tempe Rotary Club at the Rotary International Meeting which is being held in Mexico City this spring. Mrs. Stroud, son and daughter are with him.

Dr. S. W. Cartwright recently Senior Physician at Fort Defiance and previous to that of the Phoenix Indian School Hospital has been transferred to the Sacramento Indian agency in California.

Benjamin E. Johnson of Mesa, son of Mr. and Mrs. G. A. Johnson, graduated this spring from the George Washington Medical School at Wash-

ington, D. C. and is now serving an internship at the city public hospital in Baltimore. With his wife, he recently visited his parents in Mesa.

Dr. J. H. Patterson was the speaker at a Mesa Lions Club meeting in May.

Dr. Walter Brazee of Kingman recently spent a few days in Phoenix; his wife had undergone a major operation a Phoenix hospital and he came down to see how she was getting along. Reports are that although she had a stormy course for a short time she is now doing as well as can be expected.

The City Health Department of Phoenix has been making an intensive fight against mosquitos. They have requested that all citizens join with them in the campaign.

Dr. H. M. Purcell, urologist of Phoenix, attended the American Urological Association Meeting in San Francisco June 25-28.

Dr. Fred Jordan recently made a trip to Boulder Dam and was ferried across to the California side. After inspecting Boulder City and the dam he went on to California and had a week's visit.

Dr. Robert M. Matts, house physician at the Good Samaritan Hospital a year or two ago, is now with one of the CCC camps near Prescott, Arizona. He is married.

Dr. Louis D. Vaughn, son of Mr. and Mrs. George W. Vaughn of East Virginia avenue, Phoenix, Arizona, is now associated with the Mayo Clinic at Rochester, Minn. He recently finished an internship at the Ancker Hospital at Saint Paul, Minn. He is a graduate of Northwestern University in medicine and took his collegiate work at Phoenix Junior College with one year at Northwestern. He is going to specialize in internal medicine.

Dr. Ralph Palmer, Medical Advisor to the Arizona Industrial Commission, has been appointed a member of the Committee of International Medical Relations of the Pan American Medical Congress which is making a 35-day ocean tour. The Congress sails from New York on June 29 at 1:00 a. m., on the Queen of Bermuda. The first call will be at Nassau in the Bahama Islands on the morning of July 1st; they will leave there that afternoon and on the third call at Kingston, the principal city at the Port of Jamaica, where the day is spent. On July 5th they call at Curacao one of the Dutch Islands of the West Indies just off the coast of Venezuela. They arrive in Rio de Janeiro July 14 where the sessions of the Congress will be held. They sail from there on July 17th and spend two days, July 18th and 19th, at Santos and other points in Brazil. Sessions of the Congress will be held at Sao Paulo. On July 27 they they arrive at Trinidad, a British West Indian Island off the coast of Venezuela at the mouth of the great Orinoco River. Sailing that evening they arrive on the 29th at Porto Rico; sailing from there late in the afternoon to New York, they arrive August 2nd at 6:00 a. m. The Congress will have traveled 11,462



miles. Dr. Palmer will carry with him letters from Governor Moeur to officials of the countries to be visited.

The ear, eye, nose, and throat specialists of Phoenix, Arizona, have recently organized as a division of the Maricopa County Medical Society, the purpose of which is to have programs pertaining to their specialties. The charter members of the group are: Drs. H. T. Bailey, D. E. Brinkerhoff, Lon Browning, H. L. Franklin, Duke R. Gaskins, D. F. Harbridge, B. L. Melton, Harvey E. Moss, F. L. Rees, Mayo Robb, W. A. Schwartz, James L. Johnson, Edwin Bakes, president of the group, and Harley Yandell, secretary.

Dr. Guy French is spending the month of June in St. Louis studying with Dr. Coughlin, head of Department of Surgery in St. Louis University.

Drs. Floyd Sharp and Preston Brown have associated themselves in the practice of obstetrics and gynecology, and are now located in the Professional Bldg. Dr. Sharp was recently in the Grunow Clinic Bldg.

Dr. J. B. Van Horn of Tucson has long been yearning to catch a Marlin swordfish; his ambitions now have to be moved up for recently he brought back a 207 pound swordfish from the Gulf of New Mexico measuring 10 feet three and one half inches.

Dr. Harley Yandell is spending the month of July in clinics in St. Louis after which he will visit in Washington, D. C. before returning.

Dr. R. M. Tafel recently of Williams, Arizona, pioneer physician and former City Physician of Phoenix, died July 3 at Williams, Arizona.

Dr. Joseph Bank, Assistant Professor of Gastroenterology at the University of Pennsylvania Graduate School, is on leave from that Institution, and is opening up an office for practice of his specialty in Phoenix, Arizona.

Dr. Kent Hathorn Thayer, son of Dr. and Mrs. L. H. Thayer of Phoenix, Arizona, has been awarded the degree of doctor of medicine by the University of Chicago. He expects to take the State Board Examination this fall and locate in Phoenix.

## The New Mexico Medical Society

**Notes of the Fifty-third Annual Session,  
Albuquerque, N.M., May 23-25, 1935.**

Albuquerque, always a mecca for members of the Society because of the hospitality, cordiality and good fellowship extended by its doctors and residents, ran true to usual form in 1935, and drew a large number of physicians from all parts, including those who seldom attend meetings elsewhere, as well as the steady faithful who never fail in attendance at all sessions.

Registrations headquarters and all scientific and business sessions were held in the Franciscan Hotel where members were cordially welcomed and enjoyed the privileges accorded at this beautiful hostelry.

For advancement of scientific and professional knowledge, the Bernalillo County Medical Society presented a wonderfully instructive, well-balanced program, with scientific papers by men outstanding in their respective fields, which was further enhanced with vigorous round-table discussions at the luncheons. Interesting scientific exhibits attracted considerable attention, especially those by the New Mexico State Health Department, the Lovelace Clinic, St. Joseph's Hospital and Van Atta Laboratories.

The smoker at the Elks' Club on Thursday evening was a gala attraction, varying from old-fashioned Dutch lunch, with liquors on the side, through the courtesy of Philip Morris & Co., Ltd., to wrestling and boxing matches, fancy and fan dances by guests and members. One thing was certain, everyone had a good time, and if there were headaches the morning after, Rx's were liberal.

The tea at the residence of Mrs. J. W. Hannett, under the auspices of the Women's Medical Auxiliary, honoring the visiting ladies, and also the dinner dance at the Franciscan Hotel, were well attended, providing pleasing entertainment and diversion after the strenuous sessions.

### Important Business Transacted

Elected to membership: Dr. Sam R. King, Fort Stanton, N. M.; Dr. Fred Leslie, Hot Springs, N. M.; Dr. Harry A. Patterson, Fort Stanton, N. M. Applications for membership pending: Dr. J. N. Becker, Parkview, N. M.; Dr. Hilton W. Gillett.

### Motions Passed

**Legislative Committee.**—Continued and instructed to again employ Attorney Gilbert to look after the interests of the medical profession in New Mexico.

**Legislative Committee.**—Instructed to have bill drafted and recommended for passage at next session of Legislature, incorporating in a \$2.00 annual registration fee for every practitioner of medicine in the state. For non-residents, fee should be \$10.00.

**Malpractice Insurance.**—Appointment of committee of five members on Medical Defense, to confer with the representative of the U. S. Fidelity & Guaranty Insurance Company on behalf of the Society, to adjust any difficulties that may arise and treat the whole situation. Members of committee: Dr. W. R. Lovelace, Albuquerque; Dr. Carl Mulky, Albuquerque; Dr. L. B. Cohenour, Albuquerque; Dr. F. F. Doepp, Carlsbad; Dr. C. H. Gellenthien, Valmora.

**F.E.R.A. Agreement.**—Appointment of committee known as Medical Relief Committee, to confer with the New Mexico Emergency Relief Administration relative to medical care of indigents in New Mexico; that this committee be given full power to act for the New Mexico State Medical Society until the next annual meeting in revising F.E.R.A. fee schedules or setting up any plan for administration of medical relief that may seem advisable. Committee so appointed: Dr. Carl Mulky, Albuquerque; Dr. G. T. Colvard, Deming; Dr. R. L. Bradley, Roswell; Dr. V. E. Berchtold, Santa Fe; Dr. F. H. Crail, Las Vegas.

**Committee to study the problem and various plans for handling low income medical practice** and make report at the next annual meeting. Committee appointed: Dr. R. O. Brown, Santa Fe; Dr. W. R. Lovelace, Albuquerque; Dr. H. A. Miller, Clovis.

### Election of Officers

President-elect—Dr. M. B. Culpepper, Carlsbad; Vice-president—Dr. George W. Jones, Clovis, N.

M., (re-elected); Secretary-treasurer—Dr. L. B. Cohenour, Albuquerque, (re-elected); Members of Council for Three Years—Dr. C. B. Elliott, Raton (re-elected); Dr. R. O. Brown, Santa Fe (re-elected); Delegate to A.M.A.—Dr. H. A. Miller, Clovis (re-elected); Alternate—Dr. W. R. Lovelace, Albuquerque; Board of Managers, Southwestern Medicine—Dr. C. H. Gellenthien, Valmora; Dr. J. R. Earp, Santa Fe. Meeting place, 1938—Carlsbad, N. M.

#### Resolutions Adopted

**Resolution:** "WHEREAS, the medical profession and the public have the right to look to the American Medical Association to assume a role of leadership in both the scientific and legal phases of all branches of medical practice; and,

WHEREAS, The whole subject of birth control is seriously in need of scientific study and investigation; be it

**RESOLVED,** That the New Mexico State Medical Society request the House of Delegates of the American Medical Association to initiate a comprehensive program with respect to the study of birth control, instructing its appropriate agencies to undertake the necessary scientific study; and be it

**FURTHER RESOLVED,** That our delegate to the House of Delegates be instructed to urge and vote for the adoption of such a program of investigation; and that the Secretary be hereby instructed to forward a copy of these Resolutions to the Secretary of the American Medical Association."

**Resolution:** "During the past year the following New Mexico physicians have died:

J. A. Reidy, Albuquerque, N. M.  
Augustus Davis, Superior, Wyoming.  
S. L. Wilkinson, Belen, N.M.  
C. F. Milligan, Clayton, N.M.  
S. M. Edmondson, Clayton, N.M.  
C. G. Duncan, Socorro, N.M.  
T. P. Martin, Taos, N.M.  
A. W. Smith, Roswell, N.M.

WHEREAS, Divine intervention has ended the active practice of a number of the members of the New Mexico State Medical Society, during the past year, who in their passing, have taken from us valuable friendships and associations, and

WHEREAS, these physicians have left us only our memory of them and the deep impress they made on patients and friends,

**THEREFORE, BE IT RESOLVED,** the New Mexico State Medical Society in regular annual session expresses its deep sorrow because of the loss which it has sustained in the passing of Dr. J. A. Reidy, Albuquerque, N.M.; Dr. Augustus Davis, Superior, Wyo.; Dr. S. L. Wilkinson, Belen, N.M.; Dr. C. F. Milligan, Clayton, N.M.; Dr. S. M. Edmondson, Clayton, N.M.; Dr. C. G. Duncan, Socorro, N.M.; Dr. T. P. Martin, Taos, N.M.; Dr. A. W. Smith, Roswell, N.M.

**BE IT FURTHER RESOLVED,** that the minutes of our meeting bear the expression of these sentiments and that appropriate indication be sent to the families of the deceased.

(Signed) W. R. Lovelace,  
F. H. Crail,  
G. T. Colvard,  
Committee on Necrology.

**Resolution:** Be It Resolved, that this society express to the Mayor, City Officials and citizens of the City of Albuquerque, New Mexico, our deep appreciation of the splendid reception and cour-

tesies extended our membership and Auxiliary during our sojourn in this, the metropolis of New Mexico, during our annual meeting for 1935.

Be It Resolved that this Society extend to the Press of the City of Albuquerque our compliments for the splendid cooperation in making this, our 53rd Annual Session of the New Mexico State Medical Society and its Auxiliary, the success it has proven to be.

Be It Resolved that the New Mexico Medical Society and its Auxiliary in 53rd annual meeting held in the City of Albuquerque, May 23rd, 24th, and 25th, extend to the Bernalillo County Medical Society and its Auxiliary our deep appreciation of the royal reception given our organization and for the interesting and profitable scientific program, as well as the social entertainment, offered us.

(Signed) H. A. Ingalls,  
R. L. Butler,  
H. A. Miller,  
Committee.

Those physicians registered were:

Adler, S. W., Albuquerque, N.M.  
Alexander, H. W., Santa Fe, N.M.  
Amber, C. J., Mountainair, N.M.  
Anderson, Cyrus W., Denver, Colo.  
Ballenger, Irby B., Albuquerque, N.M.  
Baton, C. B., McLean, Texas  
Bergen, J. A., Rochester, Minn.  
Barton, W. C., Santa Fe, N.M.  
Beam, M. P., Albuquerque, N.M.  
Berchtold, V. E., Santa Fe, N.M.  
Blakesell, M. A., New Mexico Home and Training School, Las Lunas, N.M.  
Bradley, R. L., Roswell, N.M.  
Brown, A. F., Fort Sumner, N.M.  
Brown, O. H., Phoenix, Arizona  
Brown, Robert O., Santa Fe, N.M.  
Brown, W. L., El Paso, Texas  
Brush, C. L., Albuquerque, N.M.  
Bumpas, H. C., Pasadena, Calif.  
Burton, V. L., Albuquerque, N.M.  
Butler, R. L., Clovis, N.M.  
Cantrell, W. B., Gallup, N.M.  
Clark, S. C., Albuquerque, N.M.  
Cohenour, L. B., Albuquerque, N.M.  
Colvard, George T., Deming, N.M.  
Cook, L. C., Albuquerque, N.M.  
Cornish, J. R., Albuquerque, N.M.  
Crail, F. H., Las Vegas, N.M.  
Culpeper, M. B., Carlsbad, N.M.  
Cunningham, M. A., Deming, N. M.  
Diver, J. C., Springer, N.M.  
Dougherty, J. M., Tucumcaria, N.M.  
Douthirt, C. H., Santa Fe, N.M.  
Duncan, D. G., Albuquerque, N.M.  
Elder, John W., Albuquerque, N.M.  
Elliott, C. B., Raton, N.M.  
Elliott, L. F., Albuquerque, N.M.  
Epler, C., Pueblo, Colo.  
Espinosa, T., Espanola, N.M.  
Evans, Arthur J., Elida, N.M.  
Foster, Joseph, Santa Fe, N.M.  
Frank, C. A., Albuquerque, N.M.  
Frank, J. E., Santa Rosa, N.M.  
Frisbie, Evelyn F., Albuquerque, N.M.  
Gellenthien, C. H., Valmora, N. M.  
Goelitz, H. W., Albuquerque, N.M.  
Garduno, J. L., Albuquerque, N.M.  
Gekler, W. A., Albuquerque, N.M.  
Gerber, C. W., Las Cruces, N.M.  
Goodwin, Frank, El Paso, Texas.  
Gore, George J., Albuquerque, N.M.  
Green, Martin, San Francisco, Calif.  
Gerber, C. F., Las Cruces, N. M.



Hamett, J. W., Albuquerque, N.M.  
 Harris, J. E. J., Albuquerque, N. M.  
 Hart, C. S., Dawson, N.M.  
 Heller, F. M., Pueblo, Colo.  
 Hendricks, C. M., El Paso, Texas  
 Hass, S. L., San Francisco, Calif.  
 Holbrook, W. Paul, Tucson, Arizona  
 Homan, Ralph H., El Paso, Texas  
 Hensley, E. T., Portales, N.M.  
 Hollis, R. G., Ft. Stanton, N.M.  
 Ingalls, H. A., Roswell, N.M.  
 Jones, George W., Clovis, N.M.  
 Johns, E. W., Albuquerque, N.M.  
 Johnson, F. H., Carrizozo, N.M.  
 Kaser, W. E., Las Vegas, N.M.  
 Kempers, B., Albuquerque, N.M.  
 King, Sam R., Fort Stanton, N.M.  
 Kisner, J. C., Clayton, N.M.  
 Lamon, J. D., Jr., Albuquerque, N.M.  
 Lathrop, A. S., Santa Fe, N.M.  
 Latson, H. H., Amarillo, Texas  
 Leslie, Fred, Hot Springs, N.M.  
 Lovelace, W. R., Albuquerque, N.M.  
 Lukens, C. E., Albuquerque, N.M.  
 Manwell, G. E., Magdalena, Texas  
 Matthews, E. C., Albuquerque, N.M.  
 Meacham, C. C., Albuquerque, N.M.  
 Mendelson, R. M., Albuquerque, N.M.  
 Miles, L. M., Albuquerque, N.M.  
 Miller, C. A., Las Cruces, N.M.  
 Miller, Felix P., El Paso, Texas  
 Miller, H. A., Clovis, N.M.  
 Minat, V. N., Las Vegas, N.M.  
 Moir, J. G., Deming, N.M.  
 Monaco, D. F., Santa Fe, N.M.  
 Mortimer, H. M., Las Vegas, N.M.  
 Mulky, Carl, Albuquerque, N.M.  
 Muir, J. W., Las Vegas, N. M.  
 Naffziger, H. C., San Francisco, Calif.  
 Packard, Robert G., Denver, Colo.  
 Payne, H., Raton, N.M.  
 Peters, L. L., Albuquerque, N.M.  
 Porter, Ralph E., Fort Stanton, N.M.  
 Richards, P., Albuquerque, N.M.  
 Rife, Dwight W., Santa Fe, N.M.  
 Rodger, H. E., Albuquerque, N.M.  
 Rogers, Emmett E., Albuquerque, N.M.  
 Scott, James R., Albuquerque, N.M.  
 Sheridan, W. M., Albuquerque, N.M.  
 Soiland, Albert, Los Angeles, Calif.  
 Stofer, J. W., Gallup, N.M.  
 Stone, Frank, Santa Fe, N.M.  
 Stroup, H. A., Artesia, N.M.  
 Stump, Robert M., Winslow, Arizona  
 Swearingen, F. G., Roswell, N.M.  
 Tarkington, Grayson T., Albuquerque, N.M.  
 Thomas, W. H., Albuquerque, N.M.  
 Thorpe, Byron B., Tucumcari, N.M.  
 Van Atta, J. P., Albuquerque, N.M.  
 Vinyard, J. P., Albuquerque, N.M.  
 Walls, E. C., Albuquerque, N.M.  
 Wheeler, A. J., Albuquerque, N.M.  
 Wittwer, N. F., Las Lunas, N.M.  
 Woolston, William H., Albuquerque, N.M.  
 Wylder, M. K., Albuquerque, N.M.  
 Mr. George McAlman, El Paso, Texas  
 Mr. MacWhorter, J. H., El Paso, Texas

Arthritis in Industry, and other papers on medical subjects; Dorrance & Company, Inc., Philadelphia.

As a general rule medical books are written by physicians who are practitioners in large cities, and generally they are in large medical centers. Dr. Rivers is located in a small town in Florida which has the euphonious name of Kissimmee. The mere fact that the author is not in connection with a great medical institution is no argument against his having written a most creditable book.

He regards certain diseases as intimately influenced by the autonomic nervous system; while certain individuals have a tendency in one direction for example vagatonia, others may have sympathetonia. He continues that the body may be flooded with toxins. First among the toxins are amines which may affect one or another tissue and different in different individuals, depending upon whether the sympathetics or the para-sympathetics predominate. It is a variation from the balanced state of the autonomic system which is morbid. The morbid variations or unbalance in the functional activity of the organization is what determines the type of disease.

The allergen and the endocrines have their specific effects in determining the type of the disease in the two types of persons. He continues in much detail discussing a large group of symptoms and diseases.

The book is well worth reading by medical men because of its suggestiveness.

**PRACTICAL TALKS ON HEART DISEASE:** by George L. Carlisle, M. D., Associate Professor of Clinical Medicine, Baylor University, Dallas, Texas; Charles C. Thomas, Springfield, Illinois; Baltimore, Maryland.

I know of no book on the heart which presents so many data in such a limited space in such a clear understandable manner as does this book. It is written primarily for the general practitioner. The author thinks as a general rule the refinements for the study of the heart, such as the electrocardiogram are usually unnecessary. His dissertation on murmurs and ordinary affections of the heart are short and to the point. From reading page 50, 51 and others one might think that the book is an advertisement for S.C.A. serum and antigen. He has evidently had excellent results with these agents. The book is recommended for those who wish a terse review of the facts on the heart.

**THE 1934 YEAR BOOK OF NEUROLOGY, PSYCHIATRY AND ENDOCRINOLOGY:** Neurology edited by Hans H. Reese, M. D., Professor Neurology and Psychiatry, University of Wisconsin Medical School; Psychiatry, edited by Harry A. Paskind, M. D., Assistant Professor of Nervous and Mental Diseases, Northwestern University Medical School; Attending Neurologist, Evanston Hospital; Associate Attending Neurologist, Michael Reese Hospital; Endocrinology, edited by Elmer L. Sevringhaus, M.D., Associate Professor of Medicine, University of Wisconsin Medical School; The Year Book Publishers, Inc., 304 South Dearborn Street, Chicago, Illinois.

This is a handy size volume of nearly 800 pages presenting the work of the past year on these subjects. If one wishes to have information, for example, on syphilis of the nervous system, he finds about 15 pages devoted to it; or if he wishes information on the development of migraine, he finds about 16 pages dealing with this subject; 251 pages are devoted to the advance in endocrinology. To a person interested in these subjects this book is invaluable.

## BOOK REVIEWS

### THE AUTOMATIC DISEASE OF THE RHEUMATIC SYNDROME

T. M. RIVERS, M.D., Author of Focal Infections.

The Resulting Morbidity and Treatment for Same, Arthritis with special Reference to Cause, Proteins in Human Pathology, Blood Pressure,

**THE COMPLEAT PEDIATRICIAN;** Practical, Diagnostic, Therapeutic and Preventive Pediatrics; for the use of Medical Students, Interns, General Practitioners, and Pediatricians: by Wilburt C. Davison, M.A., D.Sc., M.D., Professor of Pediatrics, Duke University School of Medicine, and Pediatrician, Duke Hospital; Formerly Acting Head of Department of Pediatrics, The Johns Hopkins University School of Medicine, and Acting Pediatrician in Charge, The Johns Hopkins Hospital; Fellow, American Academy of Pediatrics and American College of Physicians; Member White House Conference, American Pediatric Society, and, American Board of Pediatrics; Durham, N. C.; printed by Seeman Printery for Duke University Press; 1934.

This is an encyclopedia of pediatrics. If one wishes to know about a disease, for example warts, he turns to the chapter on diseases and pages through the alphabetical list until he comes to warts. A brief comprehensive discussion is given in about eight lines. Cyclic vomiting is discussed in the same way in 20 lines; in these few lines, however, a tremendous amount of information is catalogued. Looking for endocrine abnormalities the essential information on diabetes, dwarfism, obesity, etc., is found in about 20 lines.

One chapter is devoted to signs and symptoms. If one finds a patient in coma he may turn to paragraph 61 which is found through alphabetical arrangement and finds reference to some 40 ordinary diseases which in turn will be found in the chapter on diseases. Chapter three deals with preventive measures; chapter five deals with feeding; chapter six with drugs; chapter seven with laboratory methods. This would seem to be an extremely practical book for pediatricians and all others treating of child diseases.

**HOW TO PRACTICE MEDICINE:** by Henry W. Kemp, M. D., New York; Paul B. Hoeber, Inc., New York; Price \$2.50.

For one physician to attempt to tell another how to practice medicine might seem like the first physician had too much ego and too little regard for the intelligence of the average run of physicians. Dr. Kemp, however, presents his thesis in a manner which makes one realize that he is not consumed with ego and that he knows there are many things he can learn from others.

He has written this book primarily for the young physician just beginning practice. He says one should "read this book as one eats fish—eat the meat and leave the bones."

He says many splendid things. Among the titles

of chapters are: Choosing location; office and equipment; care and personal appearance; office consultations; house calls; religion, politics, and social graces; nurses; etc.

Any physician should profit by a reading of this book.

Opening the book at random, we choose several short quotations which may show something of the author's astuteness; "See things from his (patient's) viewpoint;" "don't overlook any complaints of pain;" "women don't love women;" "as a rule women don't want other women to know or hear their defects or troubles;" "never hurt the patient physically or financially;" "it is unnecessary to mention the diagnosis;" "mention the good facts in the case;" "don't give printed instructions;" "give advice but don't explain it."

The book is filled with interesting and helpful statements.

**BRONCHOSCOPY, ESOPHAGOSCOPY and GASTROSCOPY;** A manual of Peroral Endoscopy and Laryngeal Surgery; by Chevalier Jackson, M. D., Sc.D., LL.D., F.A.C.S., Professor of Bronchoscopy and Esophagoscopy, Temple University; Bronchoscopist, Temple University Hospital; and Chevalier L. Jackson, A.B., M.D., M.Sc. (Med.), F.A.C.S., Professor of Clinical Bronchoscopy, Temple University; Bronchoscopist Temple University Hospital; third edition, reset with 225 illustrations and 15 color plates; W. B. Saunders Company; Philadelphia and London; 1934; Price \$9.00.

Jackson's book is so well and favorably known by the medical men of the world that nothing need be said of it except that this, the third edition, is

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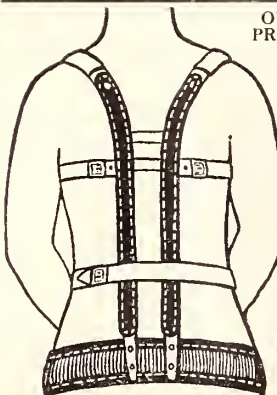


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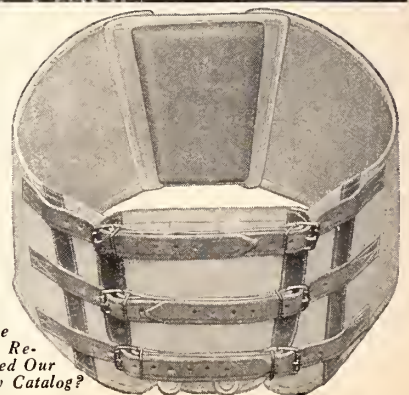
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Ambulatory Splint — 15.00

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entirely reset. It is now translated into Italian and into French. Everything is told regarding indications and uses of the bronchoscope, the esophagoscope and the gastroscope. It would seem that Jackson has had every sort of experience that it is possible to have in which these instruments might be of use. The authors have splendid use of the English language and make the subject matter clear and interesting. The printing art is beautifully portrayed; the cuts as well as the type are excellent. Every physician doing any of the work which is described in the book will wish to have a copy of the book.

**THE ROMANCE OF EXPLORATION AND EMERGENCY FIRST-AID FROM STANLEY TO BYRD:** Chicago Century of Progress Exposition, 1934; Burroughs Wellcome & Co., 9-11 & 13-15 East 41 Street, New York City.

We seldom consider a drug catalogue worthy of review; but the Romance of Exploration is most interesting. The work of each explorer is treated in brief. Enough is said to arouse one's interest and refresh one's mind on the deeds of many daring men. Several of the great explorers have been physicians. Among those mentioned are: Sir Richard Francis Burton, Captain John Hanning Speke, James A. Grant, Samuel Baker, Dr. David Livingstone, Henry M. Stanley, Theodore Roosevelt—the elder, Dr. Sven Hedin, Roy Chapman Andrews, Roald Amundsen, Leif Ericsson, John Cabot, Henry Hudson, General A. W. Greely, Dr. Salomon August Andree, Walter Wellman, Admiral Robert E. Peary, Vilhjalmur Stefansson, Captain Robert S. Scott, Sir Ernest Shackleton, Lincoln Ellsworth, Rear-Admiral Byrd, and others.

The various explorers and their accomplishments are discussed in order to tell that each took with him an emergency first-aid kit prepared by Burroughs Wellcome & Co.

**THE 1934 YEAR BOOK OF GENERAL THERAPEUTICS:** by Bernard Fantus, M.S., M.D.; Professor Materia Medica, Pharmacology and Therapeutics, University of Illinois College of Medicine; Member, Revision Committee of the United States Pharmacopoeia and of the National Formulary Revision Committee; Director of Therapeutics, Cook County Hospital; The Year Book Publishers, Inc., 304 South Dearborn St., Chicago, Illinois.

It is said that every physician should read at least one new book a year. I am very certain that one's patients would recommend that every so many years a general review of therapeutics should be made.

Dr. Fantus has long been an exponent of the idea that more attention should be paid to the details of the treatment of a case. He has not only reviewed the advancements of 1934 but he has attempted to reiterate many of the standards of therapeutic measures which have stood the test of time. This is a book which a physician will wish to keep on his desk until the next "Year Book of General Therapeutics" is printed.

**CONCEPTION PERIOD OF WOMEN:** by Dr. Kyusaku Ogino, Head of the Gynaecological Section of Takeyama Hospital, Niigata, Japan (Nippon); English Translation by Dr. Yonez Miyagawa, Director of Government Institute for Infectious Diseases, Tokyo Imperial University, Hongoku, Tokyo, Japan; Medical Arts Publishing Company, Harrisburg, Pa.; June 6, 1934.

This is another small book—about 95 pages—on the subject of birth control with discussion of the fertile and sterile periods. The author states that he has written his book with an ideal and the hope that it will contribute ideals to married life.

## TONGUE IRRITATION

(AS ASSOCIATED WITH SMOKING)

"After smoking the diethylene cigarettes for from three to four weeks . . . the tongue conditions cleared up completely in each case."

*Some Clinical Observations on the Influence of certain Hygroscopic Agents in Cigarettes.*

Laryngoscope, 1935, XLV, 149-154\*

SEE ALSO

*Pharmacology of Inflammation: III. Influence of hygroscopic agents on irritation from cigarette smoke.*

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## PHYSICIAN'S CAPITAL INVESTMENT

(Continued from page 247)

what socialized medicine will be like; but this need not be unless the organized profession remains indifferent to the coming of socialized medicine and allow it to be without the guidance of medical men and without a carefully considered plan; the politicians otherwise will create the system and we shall be moulded into it. The last paragraph is, "Shall we propose a carefully considered plan of socialized medicine, or are we to fight among ourselves and let outsiders come in and tell us what to do?"

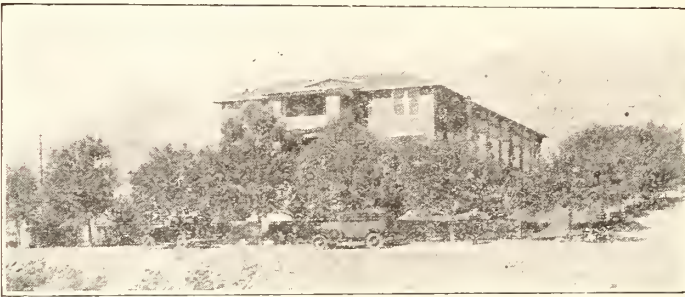
## KNOW YOUR LEGISLATORS

The Ohio State Medical Journal for June of this year calls attention to the importance of medical men's knowing whether their prospective legislators are properly informed and have correct viewpoints on health and medical questions. This means that every physician must take an active interest in political affairs. When a man announces himself for an office a physician should ascertain what his viewpoints are about medical subjects. The medical profession has great political strength

and influence in political affairs; for the most part the profession is not aroused nor sufficiently appreciative of their powers. Every county society should have a strong committee whose duty it is to keep track of legislative matters and upon the types of individuals who will do the legislating; the information acquired should be passed along to individual physicians. They in turn should pass the data on to their patients; and the physicians should not be "mealy-mouthed" in asking the patients to do what the medical profession wishes. If the physicians of a community will put up a united front they can have great political influence; they must be united and all work to the same end.

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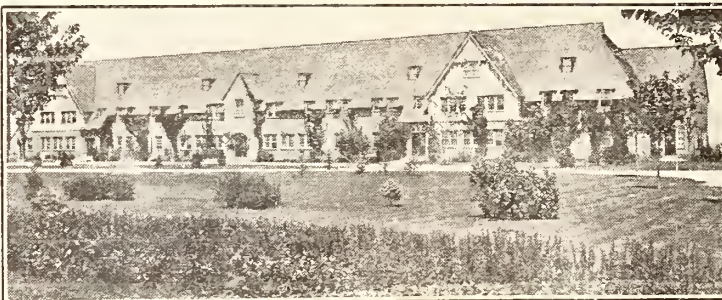


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(REGISTERED U. S. PATENT OFFICE)

VOL. XIX.

AUGUST, 1935

No. 8

OFFICIAL ORGAN  
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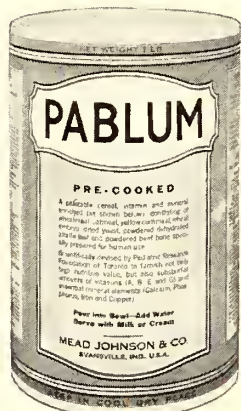
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Vitamin B(B <sub>1</sub> )-----	+ + +	+ +	— to +	+	+ +	+ to + +	
Vitamin C-----	—*	—*	—*	—*	—*	—*	
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Protein-----	15.0	15.2	11.0	9.2	3.3	13.4	
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# Southwestern Medicine

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## SHRINKAGE OF THE TURBINATES

### EFFECTED BY BENZEDRINE INHALER IN THE TREATMENT OF HAY FEVER



FIG. (i) 3:02 P.M. Before Treatment

CASE No. 1 (B.C.) Female. Colored. Acute hay fever. Seen at Nose and Throat Clinic of a Philadelphia hospital, May 28, 1934. The inferior turbinates were badly engorged and there was considerable lacrimation as seen in Fig. (i). Following four inhalations (two in each nostril) from Benzedrine Inhaler, the turbinates were shrunk as in Fig. (ii) and there was relief from lacrimation.



FIG. (ii) 3:07 P.M. After using Benzedrine Inhaler

These pictures were made by William B. McNett from actual cases seen at the Nose and Throat Clinic of a large Philadelphia hospital. They illustrate strikingly the beneficial effects obtained by inhalation from Benzedrine Inhaler during an acute attack of Hay Fever. They also confirm previous publications as to the value of Benzedrine in this condition.

"The vasomotor and 'hay fever' group was like-

wise benefited." *Bertolet, Medical Journal & Record, July 20, 1932.*

... results in hay fever "were definitely encouraging. There was definite proof, in this type of case, that the amount of secretion was diminished, the subjective itching and feeling of fullness relieved and decongestion of the mucous membrane accomplished." *Byrne, New England Journal of Medicine, Nov. 23, 1933.*



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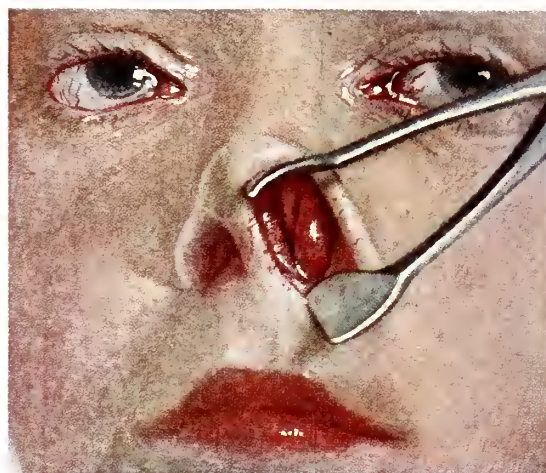


FIG. (i) 2:20 P.M. Before Treatment

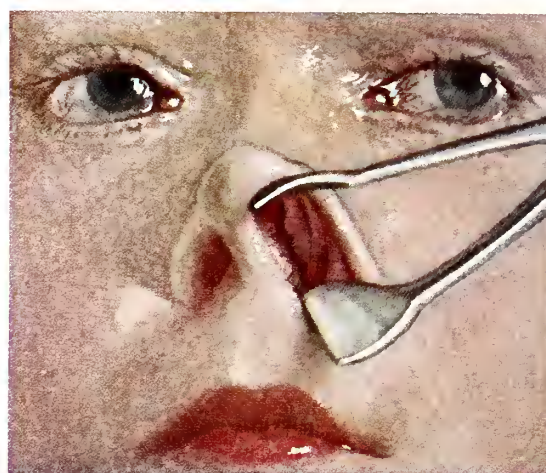


FIG. (ii) 2:35 P.M. After using Benzedrine Inhaler

CASE No. 2. (M.S.) Female. White. Acute hay fever. Seen May 28, 1934 at the Nose and Throat Clinic of a Philadelphia hospital. 2:20 P.M.—Turbinates dry and engorged. Two inhalations from Benzedrine Inhaler. 2:22 P.M.—Turbinates moist and dripping—some shrinkage. 2:35 P.M.—Maximum shrinkage and complete symptomatic relief. Small spur visible on turbinate.

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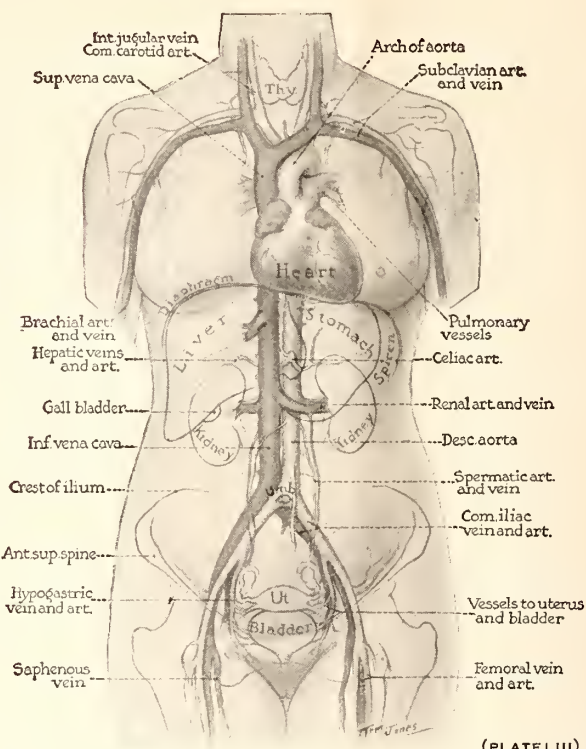
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(PLATE III)

HEART AND PRINCIPAL BLOOD VESSELS IN THE FEMALE



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Competing for a prize of 12,000 francs offered by Napoleon for the most practical method of food preservation for blockaded France, Appert, in 1804, laid the foundations of the modern canning industry. So successful were his limited efforts that a contemporary food critic has stated that Appert's products recalled "the month of May in the heart of winter."

In the first English edition of his text (1) Appert propounds his conviction:

"That the application of fire in a manner variously adapted to various substances, after having with the utmost care and as completely as possible, deprived them of all contact with the air, effects a perfect preservation of those same productions, with all their natural qualities."

Appert's findings were made empirically years before the true causes of food spoilage were known. Today, it is evident that the success of his procedure was due to heat destruction of spoilage micro-organisms, such as are associated with raw foods, and protection from subsequent contamination by such organisms.

The sterilization procedure, or the "proc-

ess" as it is termed in the industry, is an integral part of commercial canning. Essentially, it involves the heat treatment of foods sealed in hermetic containers after proper preparation; the preparatory procedures accomplishing, among other things, the removal of most of the air from the can.

The time and temperature required for sterilization of a food are dependent upon many factors. The establishment of proper processes for canned foods is not a haphazard procedure; scientific methods constantly refined during the past two decades serve to determine the times and temperatures which must be used.

The findings of the physical chemist as to the rate of penetration of heat into the food are combined mathematically with data obtained by the bacteriologist on the thermal resistance of spoilage micro-organisms (2).

From this calculation are determined the proper processes necessary to destroy spore-forming spoilage bacteria whose thermal resistance are much greater than those of the pathogens.

Selected raw material, proper preparation, and scientifically determined methods of heat sterilization have combined to insure that canned foods as a class are among the most wholesome foods coming to the American table (3).

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(1) The Art of Preserving, M. Appert, Black, Parry and Kingsbury, London, 1811.

(2) Thermal Process Time for Canned Foods, C. O. Ball, Natl. Res. Council Bulletin, v. 7 No. 37, 1922.

(3) Preventive Medicine and Hygiene, M. J. Rosenau, Appleton-Century, N. Y. 5th Ed. 1927.

*This is the third in a series of monthly articles, which will summarize, for your convenience, the conclusions about canned foods which authorities in nutritional research have reached. We want to make this series valuable to you, and so we ask your help. Will you tell us on a post card addressed to the American Can Company, New York, N. Y., what phases of canned foods knowledge are of greatest interest to you? Your suggestions will determine the subject matter of future articles.*



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VOL. XIX.

AUGUST, 1935

No. 8

ANNUAL SUBSCRIPTION \$2

SINGLE COPIES 25 CENTS

Entered at the Postoffice at Phoenix, Arizona, as second class matter.

"Acceptance for mailing at special rate of postage provided for in section 1103, Act of October 3, 1917, authorized March 1, 1931."

## TREATMENT OF HEAD INJURIES

HOWARD FLEMING, M. D.  
San Francisco

Each year brings an alarming increase in serious head injuries. The care of these is of great interest to the general practitioner and to many of the specialists in surgery. Often the difficulties in diagnosis and treatment are great and recourse to the literature reveals well known authorities differ widely in their advice. Frequently either too much or too little treatment results from this confusion and conflict of ideas. Certainly, there is no one treatment adaptable to all head injuries and, while each patient must be cared for as a distinct entity, there are general rules and principles of treatment that may be helpful.

Fortunately, there is accord in the emergency care of head injuries. Shock must be minimized—treated by means of quiet, rest, heat, and if necessary stimulation. Unfortunately, however, we frequently see a patient given a hypodermic of morphine and sent from the scene of the accident to surgery for the repair of wounds or to the x-ray room for pictures. The additional exposure and handling of the patient, incidental to such procedures, may be sufficient to throw the balance toward a fatal outcome. Bleeding usually can be controlled by simple measures until the patient's condition warrants a careful debridement and roentgenograms of the skull are of little value until the patient's symptoms suggest the necessity of operative therapy.

Just as soon as the patient's condition will permit, a careful examination is in order. Injuries to the spinal cord or the intrathoracic and intra-abdominal regions are overlooked occasionally in the unconscious patient. The head injury may be a minor concussion and the severe shock be caused by a ruptured spleen

or liver. Early examination is essential to inventory those symptoms and signs resulting from injury to the brain. A progression in their severity or the superimposing of new signs will thereby be given the proper evaluation.

Increasing intracranial pressure is the complication demanding chief concern; it is advantageous to visualize the pathological conditions causing the pressure. Hemorrhage resulting from localized or widespread laceration of the brain is frequent. The bleeding may be over the surface of the brain, into the ventricles, or into the substance of the brain itself. If the hemorrhage is profuse, intracranial pressure develops so rapidly that little can be done in a therapeutic way. If the bleeding is moderate and slowly progressive the medullary centers are able to compensate and the classical signs and symptoms of intracranial pressure develop. Briefly, these are slowing of the pulse and respiration, an increase in the blood pressure particularly the pulse pressure, increasing stupor, and rhythmical changes both as to signs and symptoms. The site and extent of the hemorrhage determine the localizing signs. In extradural and subdural bleeding the blood is easily accessible and readily evacuated.

A second cause for intracranial pressure is an abnormal increase in fixed fluid in the brain. All tissues of the body, when deprived of oxygen, absorb fluid from the circulation. Contused brain with an impaired circulation rapidly absorbs fluid which becomes fixed and is commonly called edema. The volume of the brain can be considerably increased by such means and, although frequently associated with hemorrhage, may be the sole cause for great intracranial pressure.

A third cause for intracranial pressure in head injuries is less frequent and less well known but fully as important. The cerebrospinal fluid normally circulates between pia matter and arachnoid. Occasionally, as a re-

sult of injury, the arachnoidal membrane is widely torn and the fluid enters the space between the dura and the arachnoid. Here it accumulates in large lakes, as it cannot reach the areas where it is normally absorbed, and often causes great pressure. This fluid cannot be reached or drained by spinal puncture or hypertonic solutions intravenously administered. The results following decompression and drainage, however, are fully comparable to those in cases of meningeal hemorrhage.

Increasing intracranial pressure must be relieved before decompensation occurs or a fatal outcome is inevitable. Three measures are available: The use of hypertonic solutions, spinal puncture, and cranial surgery. Each is valuable and beneficial when used at the proper time and in appropriate cases. On the contrary, if these measures are used inadvisedly, much harm may result. Cranial operations should be reserved for cases in which free fluid can be removed, as in meningeal hemorrhages, subdural collections of blood or cerebrospinal fluid and intracranial clots. Operation on a brain tense from edema, accomplishes little good and often results in material damage. The use of hypertonic solutions is indicated for the relief of edema of the brain but is dangerous in cases of intracranial pressure caused by hemorrhage.

The decision as to the pathologic changes present and the best means of treatment is not easy and a great many considerations must be carefully weighed. Of most value are careful and frequently repeated neurological examinations. The serious head injury warrants the same careful consideration as that given to an acute surgical condition of the abdomen. The original examination, if the patient is seen soon after the injury, will give an inventory of the signs resulting from damage to the brain. Subsequent changes or additions in signs and symptoms are indications of general and, often, of localized pressure. The classical syndrome of a middle meningeal hemorrhage is a good example.

The scope of this paper is too limited to allow enumeration and discussion of all the neurological signs incidental to the diagnosis of head injuries, but it may be of value to name a few. Dilated and fixed pupils, in my experience, are invariably a sign denoting a fatal outcome. Dilation of one pupil, in the majority

of cases, is on the side of maximum damage to, and pressure on, the brain. The response of the patient to firm palpation about the head will frequently localize the fracture even though the patient be in deep stupor. Simultaneous pressure on each supraorbital nerve will often give evidence of facial palsy otherwise unsuspected. Cervical rigidity, soon after the accident, suggests injury to the neck or a considerable amount of blood in the spinal fluid. This is in contrast to subsequent onset of cervical rigidity which denotes the possibility of meningitis, as a complication. Increasing weakness, impaired sensation, changed or, more especially, pathological reflexes point to the site of major injury to the brain. In rare instances, positive neurological findings will give misleading information. As a rule, however, they are a far more reliable indication of localization than visible injury or roentgen evidence of fracture.

Roentgenograms of the skull are in order when the patient's condition justifies the necessary movement. Fractures crossing meningeal markings or overlying large venous sinuses suggest the possibility of hemorrhage. A shift of the pineal gland to one side is pathognomonic of a space consuming lesion in the opposing hemisphere.

Spinal puncture is usually of diagnostic benefit and occasionally of therapeutic value. The danger of medullary herniation into the foramen magnum, resulting from lumbar puncture, in patients with head injuries probably has been exaggerated. In my opinion a greater hazard is the possibility of increasing intracranial hemorrhage. It is advisable to delay lumbar puncture from four to six hours after injury, if possible, and to avoid altering the pressure-relations until free bleeding has stopped.

The use of a manometer will give the most accurate estimate of intracranial pressure. Not infrequently, this procedure will belie symptoms of pressure, as suggested by stupor, slow pulse and Cheyne-Stokes respiration. It has been my experience that, in those cases in which slow removal of a considerable amount of fluid gradually lowers the pressure, the procedure is safe and of therapeutic value. On the other hand, if the drainage of a small amount of fluid causes the pressure to drop rapidly, it should be discontinued. If the fluid is progres-



sively more bloody, only a small amount should be removed.

A small amount of clear fluid under great pressure suggests edema or extradural bleeding. In the absence of localizing signs, edema is the more likely cause of pressure and the use of a hypertonic solution is indicated. If the clinical signs suggest the possibility of a lesion, on one side only, extradural bleeding is to be suspected and operation considered. Needless to say, the removal of the fluid should be done slowly, with frequent measurement of the pressure and constant observation of the patient's pulse, respiration and color.

In the majority of cases, careful evaluation of all clinical information available will allow a fairly accurate estimation of the pathologic changes causing intracranial pressure, and the extent of the damage to the brain.

Patients with head injuries can be divided into three groups:

There are those with extensive damage to the brain. These patients are usually profoundly unconscious, often in severe shock, and rarely show any signs of compensation. The pulse is rapid, the blood pressure low, and the temperature rises rapidly. No therapy is of any avail and all die within a few hours after injury.

The second group is composed of patients with concussion who do not have serious injury to the brain and do not develop increased intracranial pressure. All of these patients get well and the treatment plays very little part.

The third group of patients is our chief concern. Those in this group have suffered severe head injuries and the prognosis as to morbidity and mortality depends entirely on the attending surgeon's ability to recognize the injury present and afford adequate treatment promptly.

Cushing's subtemporal decompression is best suited to the majority of cases in which operation is indicated. This approach allows an adequate exposure of the middle meningeal artery and, on the right side, uncovers a fairly silent part of the brain. The closure of the incision offers a satisfactory covering of muscle and fascia. Operation is indicated in cases of meningeal hemorrhage, subdural collection of blood or spinal fluid, and subcortical hematomas. Large decompressions are seldom necessary as the drainage of fluid is all that is re-

quired. The exposure of motor and speech centers must be avoided. Unnecessary contusion may cause scars and traction on the brain resulting in convulsive states.

Brief mention should be made of chronic subdural hematomas. Until recent years very little attention was paid to them and their relationship to trauma was not fully appreciated, possibly because of the confusion regarding the etiology of pachymeningitis hemorrhagica. Frequently, the head injury is not recognized as the cause of the patient's disability because of its minor nature or the long interval between trauma and the onset of symptoms. The signs and symptoms are those associated with slowly increasing intracranial pressure. The focal signs depend on the site and extent of the hemorrhage. From 40 to 50 per cent of the patients have hematomas on both sides. Psychotic symptoms are frequent and often so outstanding that patients are occasionally confined to asylums rather than referred to hospitals for treatment. Multiple craniotomy openings with drainage of the hematomas will cure the great majority of these patients.

There is considerable divergence of opinion regarding the treatment of depressed fractures. In the case of the simple, depressed fracture, in which roentgenogram shows only a minor displacement and the likelihood of dural rents or laceration of the brain, is not great, one is hesitant to recommend operation. On the other hand, compound fractures, with in-driven spicules of bone, should be repaired as soon as the patient's condition warrants surgical intervention. Debridement, removal of all foreign bodies, elevation of depressed bone, and a careful cleansing of the wound comprise the best prophylaxis against abscess of the brain, meningitis and subsequent convulsive attacks. If operation is delayed longer than 36 hours, it is advisable to wait until the laceration is well healed before attempting the repair.

Meningitis is a fairly frequent complication particularly of basal fractures of the skull and those that involve the cribiform plate and the frontal sinuses. It is a great mistake to wash out a bleeding ear or pack a bleeding nose. Bleeding from external orifices is seldom sufficiently profuse or prolonged to endanger the patient's life and every effort should be made to prevent the infected material from being

carried toward the dura and brain. Traumatic aerocele is an occasional complication and may require operation.

A large percentage of head injuries are complicated by a medicolegal angle. There may be the problem of disability and compensation in industrial patient, or the suit for damages in the public liability case. It is often difficult to differentiate between a patient with purely functional symptoms, one with serious post-traumatic head symptoms and one who is malingering.

The term "fractured skull" always seems to impress the patient with the seriousness of his injury while such terms as "just a cracked or broken head or concussion" are accepted with grateful relief. The laity, as yet, has not learned to evaluate the significance of a fracture against that of a badly lacerated brain. It is difficult often to refuse the demands of relatives for roentgenograms until the patient's condition permits their being taken. Juries are much more impressed by widespread fractures, visible in the film, than by a recital of symptoms of headaches, dizziness and mental deterioration. While it is wise to minimize the seriousness of a patient's condition it is good judgment to keep him quiet in bed for a long period of time. I feel that we frequently make the mistakes of allowing patients to get out of bed too soon, and of delaying too long in getting them back to light work. The patients need absolute rest immediately following injury but, once the acute symptoms subside, a quick return to occupation will often avoid the neuroses that frequently incapacitate many for entirely too long periods.

Judgment as to the validity and severity of post traumatic head symptoms is based on several factors. . An authentic history of the seriousness of the accident and the severity of the injury is important. Careful examination and inventory of the objective signs suggestive of damage to the brain are more important. If one is still in doubt, special examination, such as Barany tests and encephalograms are in order. Encephalography, showing evidences of atrophy of the brain, hydrocephalus or deformity of the ventricles, is mute evidence to substantiate a patient's complaints.

In conclusion may I urge that patients with head injuries demand our best diagnostic and therapeutic efforts. A great deal can be done

for many of these patients and improper care is fully as reprehensible as the neglect of an acute abdominal lesion. Only too frequently, a restless patient with a head injury is made quiet by a large dose of morphine and his eventual outcome left to chance. This attitude is not worthy of the medical profession and should be corrected.

#### DISCUSSION

**DR. A. K. DUNCAN:** Dr. Fleming has thoroughly covered the ground. I should like to ask Dr. Fleming on the use of the spinal puncture in these and have the difference in use between hypertonic solutions and glucose discussed a little further. Dr. Fleming warned against the washing out of a bleeding ear and the packing of a bleeding nose. I have in mind the handling of the low intelligence group with whom we are confronted in many of our cases. It takes constant watching to keep these patients safely in line. To illustrate, we had the case of a negro who was bound to dislodge an uncomfortable clot from his nose. He blew a heavy blast in spite of warning. The result was pneumonia and not meningitis as we feared. Again I thank Dr. Fleming for a presentation so thorough and so clear as to leave questions useless.

**DR. FLEMING** (concluding: The spinal puncture is of more diagnostic than therapeutic value. It is wisdom to use the puncture to the point of relieving cranial pressure rather than to continue its use until the fluid runs clear. The use of glucose has two advantages. First, it is almost as effective as saline, and second, it has high food value.

### THE SAN DIEGO CENTRAL MEDICAL SERVICE

(A Postpayment Plan of Medical Care for the  
Low Income Groups.)

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(Read before the 1935 annual meeting of the  
Arizona State Medical Association, April 23-25.)

Early in 1932 the inadequacies of the present system of medical care were discussed by a committee of the San Diego County Medical Society. At that time it was known and appreciated by us that considerable proportions of the population were unable to afford regular fees for medical care and hospitalization. About the same time the Health Council of the Community Chest reported the free clinic work in San Diego disorganized, inefficient and frequently duplicated. It was their recommendation that these clinics be standardized



and some method be devised for aiding the low income group to obtain adequate medical service. Furthermore, many members of the profession had suffered drastic reductions in income as a result of economic changes. The previous year the administration had been changed at the County Hospital because of numerous far-from-the-indigent-status patients making the budget for this institution excessive for the tax payer.

The above conditions have been generally found throughout the state by a recent survey made by the California Medical Association of 60,000 families—at an approximate expense of \$80,000. It is also shown: Seventy-seven per cent of the families in California have incomes of \$2,000 a year or less; of this group, 26 per cent had incomes ranging from \$2,000 to \$1,200, and 51 per cent had incomes less than \$1,200 a year; and further, as the family income decreases, the need for medical care increases. The decreased income is called on to finance the increased cost.

Further facts regarding physicians and hospitals are pertinent. In the year of 1933 one-third of the doctors of medicine earned less than \$2,000 net income yearly, 50 per cent earned less than \$3,000 net, and 75 per cent earned less than \$5,000 net. In the same year hospitals in California averaged about 79 per cent capacity—government hospitals 90 per cent and private hospitals 53 per cent.

That a serious problem presents itself, there can be no doubt in the mind of anyone familiar with these facts.

The *laissez faire* attitude and intolerance to any proposed change on the part of many in the profession has not impressed the public with our interest in their plight.

To protect the best interests of the public we ourselves, and not the politician, economist or social worker, are best qualified to recommend and initiate changes in medical practice.

In seeking a solution two paths are open: (1) Prepayment, using the insurance principle either on a voluntary or compulsory basis thereby necessitating a complete change in the system of medical care; or (2) postpayment, using the principles evolved by the "San Diego Central Medical Service" maintaining the present methods and principles of medical practice.

#### PREPAYMENT VS. POSTPAYMENT

All are, no doubt, more or less familiar with the arguments for and against the insurance

principle in providing medical care. We have many examples of the application of both the voluntary and compulsory systems but nothing so far which would be adequate and satisfactory for the people of the United States. The people in this country have enjoyed the best medical care of any peoples on the face of the earth and they are therefore critical and will not be content with a system which is not equal or better than that of the present. This is asking a great deal of health insurance as it has been conducted in the past. Theoretically, such a system could be conducted with profit to all concerned; but actually, through lay interference and political aspiration these systems have limited medical practice to the insured and depreciated the quality by progressively throttling the physicians financially and scientifically.

A system of voluntary health insurance as a solution of the problem may be dismissed. In the first place: Any plan for voluntary insurance should be controlled and sponsored by the organized profession on a nonprofit basis for administration; there should be no lay intermediary to take the lions share of profit at the expense of the physicians who actually give the service; such plans are out of the question; many have been tried and all have been failures as a solution for adequate medical and allied service to the low income groups for one main and compelling reason: The people who need and should carry such insurance simply will not. There is no place in the psychology of the average individual to budget for such an unpredictable circumstance as illness; it is too uncertain and is soon discarded.

The difficulties in the way of voluntary schemes sponsored by medical associations are shown in the experience of the Public Medical Service for London, an organization set up by the British Medical Association, to offer service to those who do not come within the scope of compulsory health insurance. In a letter Dr. Alfred Cox, Secretary of the organization, states: "We believe we are supplying a real public need, but it is hard work. After some eight years of operation this service has only some 30,000 subscribers and well over 1,000 doctors. The difficulty is that it is a voluntary service, and we can neither compel people to join, nor to stay in when they are in. The result is a great many of the people who ought to

be in it because otherwise they are not able to pay medical fees, remain outside and a good many who join fall out for different reasons—sometimes unemployment, sometimes because they find they have not needed a doctor for some time, and they think it a pity to waste their money, and sometimes through sheer carelessness.”

Sometime ago in San Diego we perfected such a plan for voluntary health and hospital insurance, to be operated and controlled by the County Medical Society. The plan was acceptable to the Council of the State Medical Society but was discarded for the above reasons as impracticable, and further, for the reason that the insurance laws of California require a reserve fund of \$100,000 for such an insurance venture. There are other legal technicalities which would have to be met in many states unless present laws are changed to assure the success of such a plan; an important one is that which prohibits a corporation from practicing medicine.

At a recent special meeting of the House of Delegates the California Medical Association adopted the principle of health insurance, compulsory for certain groups and voluntary for certain groups. This action was taken after thorough presentation of the problem from both sides based on the results of their recent survey. Furthermore, this action was taken by a very serious delegation thoroughly aware of the inherent and permanent disadvantages of any system of health insurance. It was decided that by this system, in spite of many difficulties, the serious social problem confronting the people of California, namely, increasing costs of good medical care plus the increasing percentage (77) of population in the low income group, could be best solved. As a delegate to that convention I voted against this course but with little justification for my action, taking into consideration the facts. Another factor which influenced this action was the knowledge that an interim committee of the State Senate was positively committed to the introduction of a bill for “Health Insurance” at the present session and the profession if it were not to accept political domination in health insurance legislation must accept its duty to the people to mold such legislation to their advantage.

What the medical profession fears in health

insurance are the well known facts which have impaired the functioning of present compulsory health insurance systems, namely: (1) Inevitable interference in the confidential relation of physician and patient; under any system of health insurance fairness, in the use for one of the money of all, requires supervision of professional service and this cannot be exercised without knowledge of conditions, disclosed to the doctor by his patient or discovered by his examination; reports about patients to central authority are a necessary and routine part of the machinery of health insurance; whoever holds the purse inevitably holds control; (2) demands for unnecessary service; if the patient is to pay the bill himself, the doctor need not protect a third interested party; under health insurance the physician must constantly watch that patients do not demand and get unwarranted service at the expense of other contributors to the common fund; no one malingers under the conditions of private practice; but the medical profession has had to deal constantly, under the industrial accident insurance system, with malingering, conscious or unconscious, and with constant suspicion on the part of insurance administrators that patients are unnecessarily prolonging disability; to be placed, constantly in the role of a policeman between patient and a financial authority, is unsatisfactory and certainly not conducive to the best medical care.

(3) A small, but definite minority of doctors, will not play fair with such a common fund; to protect the common interest of contributors and physicians, all doctors must submit themselves to distasteful systems of supervision to prevent abuses by the few.

(4) Physicians have feared, and justly, the development under health insurance of political control and the development of a bureaucracy, which, not only is expensive but degrading to medicine and its work; this, I feel, is the critical point regarding compulsory health insurance because no matter how well the interests of the public and profession are guarded originally in any plan, political control will exercise itself with decrease in adequate service, increasing taxation with progressive chiseling on professional compensation to meet increasing overhead for administration; a good example is the German system in which over 60 per cent of all monies col-



lected for health purposes are expended for administration of the system.

(5) Perhaps least important, physicians object to the inevitable time consuming "red tape" of health insurance; anyone, who doubts the importance and persuasiveness of this, needs only glance at the book of 207 pages of instructions to physicians under the British system, or the 3,000 rules and regulations which have grown up in the German system.

Other objections could be raised especially in the field of public policy showing that health insurance systems do not reduce illness as has been claimed but rather increase the apparent amount of sickness; nor do they advance preventative medicine so vital to any public health program. These reasons are sufficient to show that the medical profession has had good grounds for a fear of health insurance with its consequent revolution of medical standards and practice.

### **SAN DIEGO CENTRAL MEDICAL SERVICE**

#### **(AN EXPERIMENT IN POSTPAYMENT)**

This service began functioning January 1, 1933, as a community project sponsored by the Medical Society, the Community Chest through its Health Council and by the County Board of Supervisors. Too much credit cannot be given the Community Chest for its subsidy of this service without which its initial success would have been questionable. The board of supervisors furnished one field worker from the County Hospital social service staff based on the saving to that institution.

I wish to emphasize the unique wide community interest in this organization. It is an achievement that is a real community project, conceived and executed by socially minded citizens interested in raising health standards and securing the best possible care for everyone in San Diego regardless of economic status. I believe much of the success of this project lies in the fact that it is not primarily a function of the County Medical Society but is intimately associated with all social agencies serving San Diego City and County.

The Board of Directors has been chosen with the idea of representing all agencies involved and has a membership varying from 12 to fifteen. Because of representation of the County health department, health and development department of the City schools, Coun-

ty hospital advisory board and the Naval hospital and relief organization plus the Medical Society, at least four to five physicians, have representation on the board of directors. In addition to the various social agencies the Dental Society has one member so that the governing board enjoys a wide scope of professional interest and council. The directors employ an executive secretary, medical social workers, and clerks to operate the service. The board members are assigned to various operating committees such as case, finance, etc., and other special committees appointed from time to time by the chairman as special needs arise.

Because of the necessity of thorough and standardized medical social service the executive secretary and workers maintain close affiliation with the Central Social Service Exchange which keeps all files on social service work for all agencies and organizations in the city and county. Furthermore, credit information is available through the Merchants Central Credit Association.

**Basic objects of the plan:** The plan is predicated on adequate scientific medical care for every citizen. He pays according to his ability as shown by a standardized medical social service investigation. It is adapted to present institutions and agencies in San Diego and maintains the established fundamentals of medical practice.

**The operation of the plan** is simple, the keystone being the physicians' offices. Cases are referred from four main sources: First, and most important from the physician himself; from hospitals including the county; social agencies including school clinics; health department clinics; and lastly, direct application by the patient. These sources refer direct to Central Medical Service cases which appear to be eligible for reduced fees. For the physician the ultimate criterion is whether the patient applying for medical care can arrange the total costs involved. In any case he should make this inquiry, and if the patient signifies his inability to pay the regular fee the case should be referred to the Central Medical Service for verification and adjustment. By this procedure both the patient and physician are protected from injustice.

The medical social worker approaches the case from the point of view of the family in re-

lation to the present medical problem. The record kept is a modification of the usual medical social face sheet used in most case work practice. The patient shares in making the plan; he examines his own resources and those of his family. Both assets and liabilities, social and financial, are considered; situations are faced frankly; mutual confidence between patient and social worker is essential so that the latter feels he is making his own budget and at his own standard of living. Relatives who can assist are asked to do so. Life insurance is generally considered an asset; owning or installment buying of moderate priced homes does not disqualify applicant whereas purchase or retention of property for income or speculation does. The owning of automobiles does not necessarily disqualify as we usually find old models with little value. The purchase of expensive cars or luxuries in furniture and household equipment places the applicant in another category. Many times the owning of an automobile is essential in the occupation of the wage earner.

Fees are on a sliding scale based in each case on the economic status of the family in question plus the medical service contemplated. A wide range of medical care is possible under this system beginning with the family, requiring the minimum in fees for office, medical and dental, care, who would automatically be admitted to the County Hospital in case of a major illness or operation, to the family in the higher brackets of the low income group able to afford regular fees for minor illness and dental care but requiring aid of the Central Medical Service for major illness involving hospitalization or surgery. In other words, there is an irreducible minimum under which a patient is definitely in the indigent status and above which a wide variety of arrangements can be made up to the full fee.

Under the present unregulated conditions of private practice in most communities the patient, with limited means honestly attempting to finance major illness without knowledge of probable costs, uses up all financial reserves and in the end still has unpaid bills. Because of poor planning the meeting of obligations virtually bankrupts the family for long periods; often there is default in payment of physicians, with consequent misunderstanding and hard feelings on both sides. There has been no ques-

tion in our experience that a third party, such as the Central Medical Service, in planning a budget for the services of physician, hospital, ambulance, nursing service and druggist has been a satisfactory and happy solution for the ills of the old unregulated methods of private practice. Furthermore, the coordination of the various medical services, such as consulting, laboratory and X-ray in diagnostic work, into one planned budget has fostered better medical care and permitted the patient mental and financial security in what most believed was only possible for the wealthy. Many times the assurance that costs could be controlled if necessary has been a factor in the patients undertaking diagnostic or treatment procedures that otherwise would have been neglected.

Our experience is that the public is most appreciative of this service; they have been quick to recognize the advantage of the coordinated medical work of family physician, specialist and laboratories at fees which they can pay.

The greatest care is maintained by the executive secretary to see that patients are sent to physicians of their choice and that no plan for their care is made without his knowledge and consent. The comparatively few patients applying without choice of physician are referred in alphabetical rotation to the 83 per cent of the membership of the County Society signed as willing to accept these cases.

Credit is given through the Central Medical Service only with consent of the interested physician; otherwise all transactions are cash. In the event of hospitalization, at least the hospital fee must be deposited as necessarily hospitals must collect 100 per cent to allow their generous reduction. The physician may accept monthly installments for his fee secured, if desired, by a note which is forwarded to his office. Otherwise, all financial arrangements including collection of fees is done by the Central Medical Service and disbursements are made to physicians, hospitals, ambulance companies, optical houses, etc., bi-monthly.

During the first 18 months so-called part-pay clinics were maintained at Mercy and San Diego Hospitals. Under our original plan these were operated for the group of ambulatory patients just above indigent status, i.e. below those willing and able to afford the reduced private office fee. These clinics were staffed by interested members of the profession



on a share and share alike basis with the hospital, the original registration fee of one dollar going to the Central Medical Service. It was discovered that these clinics served little purpose as most of the patients would be gladly accepted in the physicians' offices. Misunderstanding arose regarding the shunting of some of these patients from private practice to part pay clinics and as necessary reciprocal arrangement with the large County Hospital free clinics could not be established, these clinics were discontinued. The case load of the County free clinic is above 60,000 a year and many of these cases should go through Central Medical Service. Although our relations with the social service department of the County Hospital have been most cordial, the most efficient cooperation has not been possible because of their insufficient personnel. In addition to the clinic at the County the hospital runs over 600 cases per month. This volume of social work with necessary follow-up work must be done by a staff of five workers. Efforts to correct this situation have been unavailing because of political interference until a recent County Charter amendment carried which removes the control of the admissions department to a lay board of seven members. A plan for coordination of all social work in the city and county through a central office is in the process of organization; all cases not eligible for free ambulatory or hospital care at the County Hospital will be automatically referred to Central Medical service. With the centralization and standardization of social work which this new set up will give, a satisfactory plan for medical care can be made for every family in San Diego City and County regardless of economic status.

Every effort has been made to, foster preventive medicine programs and, stimulate interest among practitioners in this work. The health department in our city has been criticized for preventive programs among children and adults well able to pay physicians. Investigation showed many physicians indifferent in recommending prophylactic treatment, the pediatricians alone emphasizing the necessity among children and uniformly inoculating the pre-school children. The Health Department's attitude was that the inefficient handling of this work in private practice made immunization campaigns necessary; but they were per-

fectly willing for the profession to do this work if satisfactory methods could be devised. As a result the physicians organized the work and gave wide publicity by radio and press to a reduced fee drive for immunization which netted the profession 2,227 cases performed by private practitioners in school clinics and an estimated similar number in their offices. Further, the Health Department organized its food handlers program so that the doctors of San Diego could do this work in their offices.

School clinics have been cooperative in arranging care through the Central Medical Service for eligible children needing tonsillectomies, attention of oculists and corrective orthopedic care.

Insofar as possible the Central Medical Service considers the health problems of the entire family; but lack of workers makes it necessary to care for the immediate problem, which is often an emergency and follow-up visits cannot be made. Ideally, the social workers should be able to plan with these families routine health examinations, prophylactic immunizations and dental care rather than to wait for the family to seek medical aid when an emergency arises.

#### HOSPITALS AND COOPERATING AGENCIES

All cooperating agencies have been generous in offers of assistance. Without their help the plan could not be a success.

The retail druggist association through their many stores allows a 25 per cent reduction on drugbills. The Central Medical Service patients are identified by a special prescription blank. Any doubt on the part of the druggist as to eligibility of any patient may be easily verified by calling Central Medical Service.

The Optical supply houses have supplied lenses at suitable reductions and the Physicians Supply Company has been most helpful in reductions on all medical supplies including orthopedic appliances.

The Nurses Association provides special nursing care in seriously ill patients at the physicians' requests at a considerable reduction. They specify that they be permitted to leave a reduced fee case if they are called for a patient at the regular schedule in which event one of their associates continues with the case.

All ambulance companies have gladly cooperated.

The matter of hospitalization is vital in this

plan and has given us trouble. For the most part all hospitals have been willing to cooperate but there has been divergence of opinion among them as to the extent of their ability to care for these patients. Their original proposition on a cash basis per day ward rate was \$3.00 for medical cases and \$3.50 for surgical cases. In critically ill patients on request of the physicians in charge private rooms are provided at rates for similar cases of \$4.00 and \$4.50 respectively. Under this arrangement laboratory work including x-rays were paid for at 50 per cent of the regular fee and in surgical cases operating room fees were canceled except in cases of 24 hour service and in cases requiring special diagnostic procedures such as cystoscopy, etc. If the patient remained in the hospital over the planned number of days or used excessive drugs and dressings, the Medical Service was successful in most instances in providing for these extra costs at the reduced rates. Attempts were made to establish a fund to finance unpredictable costs of hospitalization from fees paid in excess of the reduced rates when hospitalization was shorter than planned or when the patient was able to pay slightly more than the minimum fee for all medical service. Such a revolving fund for hospitalization was not practical and has been discontinued. Considerable difficulty has been encountered by the Executive Secretary in regard to pharmacy costs in the individual case. Too many physicians are careless in the prescription of expensive proprietary products which unnecessarily increase pharmacy bills above planned costs.

In reviewing the hospital situation experience has shown that during the first 18 months 16 per cent over minimum rates were paid to hospitals by the service making \$41.63 instead of \$30.00 for the average surgical case hospitalized ten days. In analyzing 18 months' experience with one hospital doing a large volume of this work the manager estimated that the total reduction from regular rates for all cases during this period was 37 per cent. In this particular instance the manager felt there was a slight operating loss but was willing to write this off on the basis of good will and the desire of the institution to cooperate with the community project. However, the Board of Directors of the Central Medical Service do not feel that hospitals should take

an actual loss on these cases and for this reason and because of increasing costs due to increased costs of supplies, is revising hospital rates probably on the basis of a straight 25 per cent reduction of regular ward rates with pharmacy and other supplies paid for at the rate of cost plus 10 per cent.

#### STATISTICAL SURVEY OF WORK

Early in the operation of the service it was decided to check our social service procedure especially as a few physicians felt some families receiving aid were not eligible. Undoubtedly a few examples of misrepresentation have occurred as no service of this kind can operate 100 per cent; investigation of questionable cases revealed circumstances in the social histories of which the casual observer or informant is not aware. Most persons have sufficient pride that they do not publicly or privately air reverses and misfortunes so that it is unfair to judge eligibility without thorough knowledge of the social history.

With the aid of government funds a thorough survey was made of the first 794 families given reduced fees:

#### ANALYSIS OF 794 FAMILIES GIVEN REDUCED FEES

Families of 1 or 2 persons, 271 or 34%.  
Families of 3 or 4 persons, 356 or 45%.  
Families of 5 or 6 persons 132 or 16.6%.  
Families of 7 or 8 persons, 29 or 3.6%.  
Families of 9 or 10 persons, 6 or .7%.

#### 448 or 56.4% of the 794 Families Earned Regular Wages

241 or 30.3% earned below \$75.00 monthly.  
140 or 17.6% earned between \$75.00 and \$110.00 monthly.  
32 or 4% earned between \$110.00 and \$125.00 monthly.  
10 or 1.2% earned between \$125.00 and \$135.00 monthly.  
25 or 3.1% earned over \$135.00 monthly.

#### 346 or 43.6% of the 794 Families Earned Irregular Wages, Compensation, Commission, Pension or Were Unemployed

128 or 16.1% were unemployed.  
122 or 15.3% earned irregular wages.  
16 or 2% had compensation.  
31 or 3.9% earned on commission.  
48 or 6.3% had pensions.

#### Home and Insurance Owners

202 or 25.4% of the 794 families owned or were buying homes.  
111 or 55% of the 202 were mortgaged.  
200 or 25.2% of the 794 families carried insurance.



585 or 73.6% of the 794 Families Paid Rent	108 or 13.4% of the 794 Families Had Savings
162 or 20.4% had free rent.	65 or 8.2% had \$100.00 or less.
28 or 3.5% paid less than \$10.00 rent.	43 or 5.4% had over \$100.00.
124 or 15.6% paid between \$10.00 and \$15.00.	296 or 37.3% of the 794 Families Had Debts
141 or 17.7% paid between \$15.00 and \$20.00.	89 or 11.2% had debts under \$50.00.
74 or 9.3% paid between \$20.00 and \$25.00.	78 or 9.8% had debts from \$50.00 to \$150.00.
27 or 3.4% paid between \$25.00 and \$30.00.	53 or 6.6% had debts from \$150.00 to \$250.00.
16 or 2% paid between \$30.00 and \$35.00.	76 or 9.5% had debts over \$300.00.
13 or 1.5% paid \$35.00.	
265 or 33.3% of the 794 Families Owned or Were Buying Automobiles	Considering that the minimum subsistence monthly budget for a family of two is \$59.59, three \$67.65, four \$83.13 and five \$97.54, I believe all will agree that these families did not have sufficient reserve for the costs of major sickness.
206 or 25.9% of the 794 families owned their cars clear.	
59 or 7.4% were paying on automobiles.	

GENERAL MEDICAL SERVICE  
STATISTICAL REPORT  
January 1, 1933 to December 31, 1934

TOTAL NUMBER OF CASES	2583
SOURCE OF REFERENCE	
Referred by physicians .....	1152 or 44.6 per cent
Referred by self .....	415 or 16.0 per cent
Referred by county hospital .....	385 or 14.9 per cent
Referred by private hospitals .....	142 or 5.4 per cent
Referred by school clinics .....	240 or 9.2 per cent
Referred by other agencies .....	249 or 9.6 per cent
ALLOCATION OF CASES	
Referred out at full fee .....	326 or 12.6 per cent
Referred to physicians .....	2030 or 78.5 per cent
Referred to part pay clinics (first 18 months) .....	257 or 9.9 per cent
Referred to county hospital (23.4% previous care) .....	225 or 8.7 per cent
Referred to private hospitals .....	487 or 18.8 per cent
Referred to other agencies .....	209 or 8.0 per cent
INCOMPLETE .....	187 or 7.0 per cent
Total amount collected by medical service .....	\$ 56,408.42
Amount deducted for Central Medical Service (1934) .....	2,985.34
	Per cent 9.4

The files of the Central Medical Service are open at all times to all members of the medical society and cooperating agencies.

During 1934 \$2,985.34 or 9.4 per cent of the gross fee was deducted for operation of the

service. As this produced an actual operating gain the previous allocation from the Community Chest was discontinued.

In the first 18 months out of a total of \$43,503.35 collected there was a default of \$390.00 or 0.89 per cent.

Summary of Operations—Auditor's Report

	Actual for year ending 9-30-32	Adjusted budget for year ending 9-30-33	Actual for year ending 9-30-34
Total agency income .....	546.87	1,603.60	3,129.46
Total agency expense .....	2,375.50	2,662.00	2,847.39
Net agency gain or (loss) .....	(1,828.63)	(1,058.40)	282.07
Community Chest allocation .....	1,950.00	1,058.40	1,058.40
Operating gain or loss .....	121.37	—	1,340.47

This chart taken from the auditor's report shows the development of the agency to a self-sustaining basis.

CONCLUSION

I have tried to show that a definite problem exists in the distribution of the cost of medical

care and that two methods present themselves as a means of solution. In considering the advantages and disadvantages of prepayment vs. postpayment for medical care, we are challenged with a choice between the American system of individualism or the European philosophy of diametrically opposed doctrines of paternalism and state socialism. The acceptance of the latter will surely destroy American medicine as we know it today by the undermining of individual initiative and enterprise through which our profession has made unparalleled advancement.

## THE PREVENTION OF DENTAL DISEASE

DR. GUY S. MILLBERRY, Dean  
College of Dentistry, University of California

(Read before New Mexico Public Health Association, May 1, 1935, in Santa Fe.)

Dental disease may be variously classified. One method is by types: (1) Those which affect the hard tissues of the mouth—the teeth and jaws; and (2) those which affect the soft tissues of the mouth—the mucous membrane, gums and underlying tissues. Another method is by cause: (1) Those diseases traceable to dietary deficiencies, both in quality and quantity, (2) those which result from injury plus infection, (3) those believed to result from endocrine gland dysfunction or systemic disease, (4) those directly attributed to heredity, (5) those caused by improper personal hygiene, and (6) those resulting from lack of proper professional care. Dental disease is usually attributable to a combination of two or more of these.

A question may appropriately be raised as to what constitutes dental disease. For purposes of this discussion, I have included those diseased conditions found in the oral cavity, which the dentist is usually called upon to treat.

In the minds of the laity, the most common of these is dental caries (decayed teeth). It is widely recognized because, in its more advanced stages, it can be seen and it is widely heralded as the most prevalent disease, which is true, since nearly everyone suffers from it and many persons make no particular effort to prevent it.

There are several reasons why this high incidence of dental disease prevails. Usually about 90 per cent of children suffer from it. One of the reasons is that there is an almost total lack of understanding of its causes.

I am not speaking now of the knowledge on the care of the teeth and their restoration and replacement. That is heard morning, noon and night over the radio, and one can read about it in almost all current literature, even in advertisements. I am speaking of the lack of understanding of the slow and insidious pathologic changes in the teeth or within the jaw bones and the loss of teeth from these diseases. The sequelae of these changes is usually impaired health.

I am also thinking of the rigid self-discipline which everyone must subject himself to in the control of his diet and his personal care, if he would keep his teeth.

Right now I state what I believe to be a desirable objective with regard to one's teeth. It is that "the teeth should be kept in a sound, healthy condition, functioning normally and with comfort as long as one lives." That is what I would like to have for myself and for my children and for my children's children.

While decay of the teeth is universally known, the pathologic conditions which develop in the maxillae and mandibles have received little consideration until recently, largely because these tissues are not visible, as the teeth are, and because a full x-ray would be necessary in every instance as an aid to complete diagnosis. The latter for economic reasons is often difficult to obtain.

These lesions are quite unlike tooth decay; the causes are dissimilar; the disintegration in the tooth is irreparable except by artificial methods, while the disintegrated areas in the bone, in part at least, may be repaired by the same natural agency that aided in the resorption, namely, the blood stream. Bone, as one of the depots for calcium and phosphorus, is constantly changing by resorption and accretion. The jaws are no exception to this rule.

Resorptive bone diseases, which affect the skeleton as a whole, often first manifest their existence in the jaws. In many instances, Paget's disease and von Recklinghausen's disease appear first in the mandible.

Infectious diseases of the jaws are common, the reason being that the mouth is harbor for



all kinds of organisms and the proximity of bone tissue with a possible portal of entry around every tooth, as well as through the vascular system in the dental pulp, greatly favors their development.

Another dental disease equally as prevalent as dental caries, if not more so is that which involves the gingival tissues immediately surrounding the teeth. Few persons are entirely free from this and, as a rule, pay no attention to it until it becomes acute and painful. It may contribute sooner or later to the loss of sound, healthy teeth and, during the interim, may interfere with the function of mastication. Normally, the gums offer a great deal of resistance to infection. When these gingival tissues become so inflamed that the surface membranes are eroded and bleeding, organisms can readily find their way into the circulation and thence to the jaw bones, or some other locality in the body where a focus is established and derangement follows.

It is an extremely difficult thing to prove the widely accepted theory that foci of infection about the teeth are the actual causative agents in producing a disease in another part of the body, for the reason that it is impossible to trace the migration of the organisms from the assumed source to the nidus where a new pathologic disturbance arises. Yet numberless cases are reported where the removal of an infected tooth and the adjacent diseased tissues has resulted in a cure of the disease.

Toothache is traceable to many causes: (1) An exposed vital pulp, (2) a decomposing pulp, where the products of putrefaction cannot escape into the mouth and must find their way into the apical area in the bone, as the only other exit, (3) lateral alveolar abscesses, (4) injuries caused by instruments, toothpicks, brushes, chemicals, etc.

Logically, any procedure which will prevent these conditions will prevent the toothache. It is not as prevalent now as it was 40 years ago, but it has been so common in all parts of the world that it holds a position of major importance in the folklore of many countries. Kaner<sup>7</sup> has stated that more beliefs regarding this painful disease and cures for it have come down to us in the form of folklore than any other human disease. This is evidence of the continuity of a common condition through many centuries

with but comparatively little effort to prevent it.

Some other dental lesions that are, in my judgment, preventable are the various forms of stomatitis. These ulcerative lesions, caused by food idiosyncrasies, injuries, or infections, are transitory as a rule, though they may result in death. While immunization is probably out of the question in preventing these diseases, because of a lack of specificity in the organisms, nevertheless, a clean, healthy mouth offers greater resistance to infection and the prevention of injuries; and the avoidance of the use of such foods as tend to produce a disease are good preventive measures.

It is well known that the pituitary, thyroid and parathyroid glands exercise influence over calcium metabolism. Diseases of the crowns of the teeth attributed to dysfunction of these glands can only occur, so far as we know, at a time when these parts of the teeth are developing.

The roots of the teeth, however, are subject to the same changes that bone is, when disturbed glandular function prevails. Becks<sup>2</sup> in reports as yet unpublished, states that in more than 100 cases of root end resorption, 94 per cent showed evidence of hyper- or hypothyroidism in the medical examination; 50 per cent of these cases had had orthodontic treatment.

Dental diseases due to heredity are limited to defects such as missing teeth, malformed teeth, anomalies in arch form and occlusion. Cockayne<sup>3</sup> points out that these may be transmitted through several generations of females before they appear in a male, though the transmission of these defects of the germ plasm may be transmitted by normal females to a male of the next generation.

Other instances are reported by Cockayne where defects are met with in certain blood relations but not in their parents or children; and in others the defects may be transmitted by direct descent from affected members of a family to their children but normal children do not transmit them.

Anomalies of these types are not like diseases of disintegrative change such as caries, but rather to be classed with the deformities, like kyphos or club foot. Crippled mouths are not generally linked with the deformities, yet in many instances the dental deformity is far

more dangerous to health than more conspicuous physical defects.

Systemic diseases, such as syphilis, aside from the degenerative changes in the tissues of the mouth, often cause definite tooth deformities, such as notched upper central incisors, cauliflower-like sixth year molars and second premolars. Such malformed teeth are likely to decay more quickly than normal teeth do, in part owing to coronal defects and in part to malposition.

Diabetes manifests itself in lesions in the oral cavity which are classed with the parodontoses. Both bone and gingival tissues become involved and the loss of sound teeth follows sometimes as early as 16 years of age.

The contributing factors of improper personal hygiene and the lack of proper professional care are known to aid in the loss of the teeth through injury and disease.

Cleanliness and personal hygiene contribute much to our comfort and health. The care of the mouth and teeth is no exception, yet with all the instruction we receive and all the practices we resort to, we cannot rely wholly on these procedures to maintain a fine state of dental health throughout life.

The prevailing lay attitude toward dental disease is that the only method of treating it is by repair and replacement. As a rule, people do not seek the services of a dentist periodically in order to prevent, if possible, the ravages of dental disease. They do so for the relief of pain. The arrangements for the follow-up procedure are usually made at the suggestion of the dentist, although such a plan is in the interest of the patient. The dentist's assistant, not the patient, is almost always the person responsible for carrying out the program.

This practice is called preventive dentistry. It is really an inspection service to see whether or not the diseases of the mouth are inhibited or under control. The number of patients who have no manifestations of any form of dental disorder and who actually go from year to year without restorative treatment of some form or other are relatively few, if we would judge by the volume of replacement and restoration materials that are sold annually, as compared with the amount of equipment for prophylactic service.

External appearance can be considered only as a mild stimulus to the development of an in-

terest in the prevention of dental disease since people are much more concerned with their looks, as other people see them or as they see themselves in the mirror, than they are with fundamentals of good health, although this is the foundation of good appearance.

Clothes may make the man; at least they contribute much to his prestige and success; but they cannot conceal ill health if it is writ on the features or in the figure beneath the clothes. We always try to conceal our physical defects; bald heads are toupeed, blanchéd cheeks and lips are made rosy, habiliments are padded and draped to make us appear physically perfect and well. The practice of dentistry at the present time is based on the concealment of defects as well as on restoration of function.

Thus the esthetic reason, rather than a desire for good health, activates the effort to acquire good teeth and a good dental front. Holding up the goal of a pleasing appearance is one of our successful lines of approach in stimulating a desire for dental health in the adolescent group.

This brings me to a fundamental principle in the prevention of dental disease. Without this desire no great amount of good can be accomplished.

Obviously, we cannot expect children, whose primary thoughts are on food and play, to discipline themselves to reach a goal in which they see no value. There is no possible means of inducing them to exercise the necessary thoroughness in cleansing the teeth or to follow rigorously a specified diet day in and day out for the purpose of preventing dental disease. Such a discipline must be enforced by higher authority than themselves. The parents and the teachers are the ones to undertake this.

In most cases the parents either neglect or only partially encourage healthful food habits or hygienic practices and the class room teacher has such a multitude of duties that she cannot do justice to the variety of special activities imposed upon her. Health instruction of this type in her hands frequently becomes merely an admonishment and rarely makes sufficient impression upon the children to result in effective activity. Besides, neither the teacher nor the pupils fully understand the



problem. A better method must be found to meet this issue.

In adult life, even when experience has taught many lessons not to be learned from books, among them suffering from dental disease, self-discipline in the matter of dietary regimen and good personal hygiene are rare.

In almost direct ratio from the extreme of meticulous dental hygiene to total lack of it, we are likely to suffer from dental disease. There are, of course, exceptions where even aged persons have a fine dentition and may never have given it attention. In such instances, you will usually find a type of diet used consistently throughout life, especially in infancy and childhood, which contributed not only to the growth and development of the jaws and teeth but also to the cleansing of the teeth.

In cases where dental hygiene is practiced with meticulous care and no attention whatsoever is paid to nutrition, dental disease may follow. As a result of this one-sided health activity, a lack of respect for the whole health educational program may develop and interest in its maintenance may flag. If recent trends in research in the field of the prevention of dental disease are confirmed, the hygienic phase of personal care will have to take second place, though for esthetic reasons it will and should always occupy a prominent position with the people who desire to look well and be clean.

#### DIET

How can dental disease be prevented? Investigators are generally agreed now that nutrition is the basis of an effective program. Given an adequate diet throughout the life of the individual, it is possible that the teeth may be retained and may function well without personal dental care, although perhaps not always with comfort and certainly not with good appearance.

Each day's diet must contain not only the necessary elements for bone and tooth building but also, the elements that will assist in utilization of them. The choice of foods in assimilable form to meet these requirements is desirable but this need not be for most a diet of specially selected foods, each item of which is guaranteed to yield a certain quota of vitamins, minerals or energy. If the basic diet is adequate the supplementary diet may rest en-

tirely with the individual and his particular taste or choice.

What evidence have we that proves or tends to prove that dental disease is preventable?

I believe you will accept the statement that, if any given article of diet or group substances seemed to cause a disturbance in the function of an organ or tissue and its omission from the diet corrects the disturbance, it would be logical to reason from cause to effect that this substance or that actually caused the disturbance. In such a case, the eradication or the prevention of the disease or disturbance should be possible.

In diabetes, the system seems to be unable to take care of the amounts of sugar or starches normally consumed by most individuals. They are usually prohibited in part at least; if insulin is administered when necessary, the health of the patient is frequently good and his life prolonged.

Boyd and Drain, in Iowa City, showed conclusively that under such a dietary regimen dental caries can be arrested and has remained inactive for five or more years without resort to dental restorations.

The experimental work evolved out of a study of a series of diabetic cases in the Children's Hospital, where the carbohydrate elements in the diet were limited in quantity. The marked inhibition in hitherto active carious processes in the teeth of a number of children led to the belief that such results might be expected only in diabetic patients. Several series of cases were studied, among them one group of children who were not afflicted with diabetes and who were placed on an anti-ketonic diet. In each of these series, there was a complete arrest of caries in approximately twelve weeks. When the original diet of the non-diabetic group was restored, caries began to develop in about twelve weeks.

This is but one of many experiments along these lines. Howe, of Boston, was one of the pioneers in intensive study, first with animals and later with the genus homo. Grieves and McCollum, at Johns Hopkins, Bunting, at Michigan, Mellanby, of England, Simmonds, at California, are but a few of the investigators, whose research indicates that no matter what other studies are conducted, nutrition must be included, if we would solve the problem of dental caries. Simmonds' work during the past

year has been confirmed entirely to humans and the results compare favorably with animal experimentation in calcium metabolism carried on previously by her over a number of years.

#### INJURIES AND INFECTION

Injuries in the mouth are of frequent occurrence. They may be slight, such as those caused by too vigorous brushing, biting the tongue or cheek, careless use of instruments, defective dental restorations. A child with something in his mouth may fall while playing and injure the oral tissues.

Food packed between the teeth, tooth brush bristles and fragments of tooth picks jammed into the septal spaces or the gingival sulci and allowed to remain there not only injure the tissues but convey infection to the injured tissues. Unless carefully removed by dental floss or tweezers, disease may follow. All injured tissues are likely to become infected because of the great and variable mass of bacteria in the mouth. Even a slight injury may thus become serious.

#### ENDOCRINE DISTURBANCE

Special types of diet are sometimes necessary to supplement the function normally performed by certain glands, notably the thyroid. Thyroid extract is administered if the secretion is insufficient. Pituitary extract has also been used where deficiencies indicated its need. In both types of cases, improvement in the condition of the bone has been noted in patients under treatment.

The studies of Becks<sup>2</sup> and co-workers on root end resorption of particu'ar interest to the orthodontist, show conclusively that thyroid deficiency can and probably does contribute in part at least to this vexatious question, when teeth have to be moved to correct anomalies of occlusion.

#### HEREDITY

Hereditary influences are something over which we have no social control. If the knowledge we have of eugenics and genetics could be put to practical use by regulation and all people with inherited deformities or defects of the teeth could be denied the right of parenthood, we might then ultimately eliminate these factors in dental disease.

Since there is a small percentage of such cases and these conditions apply to individuals rather than to society as a whole, we need

worry but little about the hereditary factor in this wide spread problem.

#### PERSONAL HYGIENE

Improper personal hygiene of the mouth and teeth ranges from the daily neglect of small areas which are difficult of access to total neglect of the entire mouth for an indefinite period.

The writer recalls his own first experience, at the age of 18, with a dentist, when after a period of five winter months in a lumber camp on a diet which was chiefly carbohydrate, five cavities had to be filled. While he does not remember exactly the instruction the dentist gave him in the matter of mouth hygiene, it must have made a distinct impression for he religiously brushed his teeth every Sunday morning for a long time afterward.

The hygienic care of the mouth involves not only a thorough and careful removal of all food debris after each meal and an adequate cleansing on arising but all soft deposits of calcareous material must also be removed, since they have a tendency to harden in 24 hours and then they adhere so firmly to the teeth that instrumentation is necessary to remove them.

Areas which tend to pocket formation between the teeth must be carefully watched and cleansed. Resorting to the use of special types of rubber cups on handles for polishing inaccessible areas and massaging the gums are valuable aids.

I believe that a tongue scraper is an important article in mouth hygiene and have used one daily for 20 years.

The practice of proper mouth hygiene is a good habit, a very necessary habit, a three or four times a day habit and, if the proper equipment is used in the right way and abrasive pastes or powders are rarely, if ever, used, one need have no fear of the loss of the teeth from such practices. They are an aid to the prevention of dental disease and a mouth health necessity.

In 1750, Lord Chesterfield wrote to his son who was staying in Italy, "I hope you take great care to keep your whole person, particularly your mouth, very clean; common decency requires it; besides that, great cleanliness is conducive to health." Standards have not changed much.

#### PROFESSIONAL CARE

Professional care is contributory to the suc-



cess of the effort to prevent dental disease. First, it must be good. No patient knows exactly just what is being done for him, while he sits in the chair. He must have confidence in the person who guides him along this path to health and that confidence can only be based on the good judgment, integrity and competent service of the operator. The operator must have an understanding of the problems of preventive dentistry other than those connected with the work of restoration and replacement, if he would prevent a recurrence of the disease which he is called upon to treat. His counsel and service in keeping his clients dentally well are far more valuable to the patients than trying to help them to get well through restorative service.

There is one phase of activity which has come to be recognized but recently as an aid in the prevention of dental disease and that is exercise. Most people like exercise; the youth indulge in it constantly in play or in contest, the aged and infirm insist on taking mild exercise.

Usually this exercise involves the torso or the extremities, or both. As a result of it, circulation in the parts involved is stimulated, growth and function are improved, the individual has benefited unless he has exceeded his requirements and capacity.

The same principle of the value of exercise for one part of the body is equally applicable to another and all the tissues and organs of the head and face need exercise. The teeth were made for exercise; it is their function to grasp food, tear it, triturate it and in the performance of this function the growth of the bones of the face is stimulated.

Exercise keeps these tissues in a healthy condition and in certain diseases where stasis or edema occurs, exercise aids in stimulating the circulation and thus clearing up the disturbance.

In the field of orthodontia, muscular exercises of the lips, cheeks and tongue are resorted to under close supervision for the correction of dental anomalies and unpleasant or undesirable facial contortions. Such procedure is designated myotherapy.

Strengthening the muscles of the face and jaws, removing superfluous fat, giving tone to the skin result from exercising these tissues. They constitute a part of the health program.

If dental disease is preventable, and I have tried to show you that it is, then a definite procedure must be followed if we would prevent it.

The greatest obstacle to overcome is the indifferent, lethargic attitude of the people toward this question of personal health.

The habit forming procedure seems to be the best and perhaps the easiest and least expensive to follow. The formation of correct habits must be instituted early in childhood and become so fixed that the day's routine will be upset if any marked deviation from it occurs.

The habits should include a daily diet of the necessary foods which will supply the things required. If taught to the children and no evasion permitted, then a taste is cultivated for the essential foods and substitutes do not find a ready acceptance, because of this habit. This must be a disciplinary procedure, however, and no marked deviations allowed, if the desired results are to be attained.

From the standpoint of nutrition, no one age may be considered as more important than another. The period of childhood offers definite advantages in habit forming, such as a favorable mental attitude toward instruction and an inclination to imitate, which aid in the establishment of habits; the opportunities for formal instruction are generally available. However, the elementary school age is neither the only nor the most desirable period for the health program; it is merely a convenient period.

The program should be initiated at the beginning of intra-uterine life, during which time the food intake which supplies the fetus is wholly under the control of the mother and the elements of nutrition which will supply necessary tooth and bone building materials must be ingested. The control of the mother over the nutrition of the child is absolute during early infancy.

In addition to the ingestion of proper food, the mother's mouth, teeth and jaws should be as free from infected areas as it is possible to have them; not that these directly influence the skeletal structures of the unborn child, but that its general health may be impaired during this rapid growth period.

Many are of the opinion that when the individual has matured and the skeleton has reached its full growth there is no longer a need

for bone and tooth building elements. The osseous structures are subject to change throughout life just as much as the soft tissues are. Dr. Simmonds is convinced that it is just as essential for us to consume one gram of calcium and one gram of phosphorus each day, with enough vitamin D ingested or absorbed to enable the body to utilize them, at 60 years of age as it was at six.

The other nutritional factors are, in my judgment, incidental so far as mouth health is concerned. Certain cases demand that special attention is given to their inclusion for the sake of the health of the individual.

The whole problem in the prevention of dental disease must be dealt with through many channels. The best methods of accomplishing our aim with the means at our command seem to be: First, to establish food habits which include the type, quality and quantity of food that will supply all the needs of the body and arrest or inhibit the dental diseases; second, to exercise the mouth, jaws and teeth vigorously through the normal function of chewing, giving tone and strength to the muscles, favoring bone growth, and activating the circulation; third, to inculcate mouth hygiene practices early in life, continuous enough and correct enough to keep this organ free from disease; and, fourth, to consult a dependable dentist at periodic intervals for the purpose of discovering incipient disease and utilizing prophylactic procedures to prevent or inhibit further damage to the dentition.

These four points constitute the elements of the educational activity which the Good Teeth Council for Children, Inc., is advocating in its program for preventing dental disease. If they are all followed methodically and faithfully, there is reason to expect that one may reach the end of life's journey with his own teeth.

The establishment of such practices must be accomplished by discipline, first, by a superior authority and later by self-authority. There is plenty of evidence to support the statement that dental disease can be prevented if these practices are followed out efficiently and conscientiously.

The tools which should be used are health education, supplemented by health service. The latter has value as a teaching procedure and also has merit in itself. For unless the individual is aware of health as something posi-

tive, not just as absence of disease, all preventive measures seem superfluous to him.

Putting the knowledge we now possess on the subject of prevention of dental disease into good use is one of the major unsolved problems in public health today. The cooperation of the home, the schools and the health departments will be required in its solution.

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## THE CURABILITY OF TUBERCULOSIS OF THE BOWEL

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(Read at the Forty-fourth Annual Meeting of the Arizona State Medical Association, Phoenix, Arizona, April 26, 1935; from the Tucson Clinic.)

In the Southwest where pulmonary tuberculosis constitutes a large part of the daily routine of the average medical man, it would seem a foregone conclusion that the curability and treatment of secondary intestinal tuberculosis should be well understood. That it may not be is possible, in the light of pessimistic reports that have recently been published, and these, in spite of the evolvement within the past 10 years, of convincing evidence of a mode of treatment, which gives a favorable prognosis to the sufferer from tuberculous intestinal disease.

For many years it was thought, and with justification, that the onset of intestinal tuberculosis meant death. This thought is still valid, if the diagnosis is made when profuse diarrhea, high temperature, severe abdominal pain and general wasting, are in evidence. These are signs of far advanced intestinal disease, which are comparable to a group of chest symptoms, indicating a pulmonary condition which is decidedly hard to cure.

That there is a parallel between the status of pulmonary tuberculosis 30 years ago and intestinal tuberculosis today has been suggested



by many writers. The reluctance years ago to make the diagnosis of pulmonary tuberculosis until tubercle bacilli were found in the sputum is simulated now in the hesitancy and timidity in making the diagnosis of intestinal tuberculosis. The hopeless prognosis many years ago in tuberculous lung involvement parallels the hopeless prognosis held for such intestinal involvement in many quarters now. There is no excuse for this.

Pulmonary tuberculosis in its early stages is today the most curable of chronic, serious, diseases. Almost the same may be said of intestinal tuberculosis, (acute progressive type excepted) barring a lung infection which will of itself kill.

Present tested methods of diagnosis and treatment, comparable in efficiency to those of modern medicine in general, should remove the fear of intestinal tuberculosis, just as the fear has been removed from pulmonary tuberculosis. It should be kept in mind, however, that the symptoms of irremedial tuberculous disease of the bowel, which are all too evident, should be waited for only if one wishes to sign the death certificate. Interest lies in the early disease—the limited disease—the disease at a stage when it takes all diagnostic acumen, to know, whether or not tuberculous ulceration is really beginning. The inception may be in small processes not accompanied by a pathognomonic syndrome.

It is not the purpose of this paper to tell how to make a diagnosis of tuberculosis of the bowel, but since early diagnosis is of the utmost importance in considering curability, it comes within the realm of our subject to make a plea for its early determination. To know that the process occurs in approximately eight per cent of pulmonary cases, makes it requisite to select for adequate bowel examination with the x-ray all cases suggesting the disease.

This discussion throughout is understood to be confined to ulcerative tuberculous disease and not the rarer hypertrophic stenosing type.

In the diagnosis, examination of stools and other usual laboratory procedures are of value.

Unfortunately too, ulcerative intestinal tuberculosis supplies a confusingly inconsistent group of symptoms. These symptoms seldom begin suddenly. Erickson<sup>1</sup> points out that the onset is insidious in 34 per cent of the cases, and this about parallels our own findings. The

disease at its beginning may resemble disturbances of only passing importance, perhaps only indefinite symptoms of indigestion. It may be that no symptom is present to indicate extensive disease.

The clinical symptoms are rarely important in establishing a diagnosis but are to be carefully noted in selecting cases for diagnosis by the x-ray. Most commonly we find that the symptoms of greatest importance in suggesting x-ray investigation are anorexia, nausea, diarrhea, pain, and irregular temperature. Often failure to improve in a patient, who has been previously improving, with gas, distention, belching, and slight discomfort following meals is highly significant. "Change in bowel function" is a warning.

After a consideration of all clinical data, however, no definite diagnosis can ever be made—unless the disease is so advanced that it is hopeless—without the x-ray. The clinical symptoms mentioned are to be considered solely as warning signs which demand x-rays of the bowel; only by these x-rays can the diagnosis be made certain. Stierlin<sup>2</sup>, in 1911, was the first to publish a theory on x-ray diagnosis of intestinal tuberculosis. The method put forth by Brown and Sampson<sup>3</sup> has checked well with findings at autopsy and operation in other capable hands, as well as in their own. The method depends on the detection of altered motility and filling defect, or deformity and spasm, indicating an ulcerative process. An ulcerated bowel is irritable, and refuses to retain barium, a normal length of time, either in isolated segment or in whole. Upon this finding the diagnosis is based and normal variations must be understood.

In tuberculosis of the bowel, according to our experience of the past 10 years, we have an almost specific when begun early and correctly administered. This statement is made knowing that the evaluation of any type of therapy is notoriously uncertain.

The treatment is light therapy, with direct reference to artificial light therapy, in conjunction with dietary and medicinal care. The method is not new. Rollier<sup>4</sup> between 1903 and 1913 treated 16 cases of ileocecal tuberculosis with sunlight. The value of sunlight in bone and joint tuberculosis and urogenital tuberculosis is unquestioned in authoritative references. Artificial light therapy has been in wide

use for 12 to 15 years. Its value in intestinal tuberculosis is becoming unquestionable. The number of cases of curable pulmonary tuberculosis, which die of intestinal tuberculosis, even though we expect to save many more advanced lung cases than formerly, is now minimal compared with even a few years ago. This is wholly due to our new conception of intestinal tuberculosis as a curable disease. This new concept is because of improved diagnostic methods and the knowledge of curative treatment.

The quartz mercury vapor lamp, emitting a high percentage of ultra-violet rays, is best. The sun obviously emits rays of the whole spectrum and the carbon arc most nearly approaches it. In the disease under consideration, for some unknown reason, an excess of ultra-violet rays is desirable.

In administering the lamp, the chest should be covered with a close-fitting sleeveless jacket of double thickness white sateen. Dark glasses should be worn to protect the eyes. The schedule of treatment is begun with one-half to two, minute exposures (depending on the type of skin) to front and to back at a distance of 30 inches. Time of exposure is increased by one-half to two minutes daily. Burning should never occur. When the time of exposure has reached 30 minutes to both front and back, the lamp should be slowly, gradually, dropped to 20 inches distance and the time kept the same. The amount of light is inversely proportional to the square of the distance from the source. Brown and Sampson remind us that this point has its application in that when a patient tires with the usual one-hour exposure, the same quantity of irradiation may be obtained by decreasing the time as desired and also decreasing the distance according to the law.

In considering therapy by direct sunlight it is imperative to bear in mind the frequent deleterious effect on the lungs. It is our opinion that direct sunlight should not be used in this disease, unless for some reason it is impossible to secure a lamp. In such an event, most often necessitated by economic conditions, the use of direct sunlight must be attempted but it must be done carefully under close observation—never forgetting that there is a definite risk of making the lung condition worse.

Light therapy should not be the only con-

sideration in treatment. A soft low-residue diet is, we find, an important help to the ulcerated mucous membrane and a boon to the patient's comfort. Medicinally, antispasmodics, bismuth and opium are valuable. Intravenous calcium therapy, by lowering the threshold of irritability of nerve centers, is of indisputable aid in diminishing the frequency of the stools and relieving pain and nausea. High vitamin intake supplied by cod liver oil and tomato and orange juice as advocated by McConkey<sup>5</sup>, is of extreme value and should always be given when possible. Pnuemo-peritoneum, in spite of encouraging reports, seems not to have the logical basis in the treatment of a tuberculous bowel, which it has in peritoneal involvement.

The pioneer work in treatment as well as in the diagnosis of tuberculosis of the bowel must be attributed to Brown and Sampson and their associates. A large amount of scientific statistical evidence has been recorded by them. They state, in many instances of concomitant pulmonary and intestinal tuberculosis where the disease in the lung has caused death, that there is evidence of healing, and sometimes of complete healing of the intestinal lesions. Brown and Sampson<sup>6</sup> report that 103 (38 per cent) of 271 patients, after eight to 10 months of treatment, presented normal films, and that this was coincident with symptomatic improvement. More cases of healing intestinal tuberculosis have been reported the past decade than in all previous time. One hundred eighty cases were treated in Saranac Lake Village and 29 were untreated; of the untreated, 17 per cent are living and 83 per cent are dead; of the treated, 65 per cent are living and 35 per cent are dead. Bonafé<sup>7</sup> states the cure of intestinal tuberculosis shall not be considered impossible. Edgar Mayer<sup>8</sup> reports his most favorable response from quartz mercury vapor light has been encountered in intestinal tuberculosis. Numerous other authors are consistently optimistic. The excellent results we have been getting for about 10 years confirm these sanguine reports.

The discrepancy, then, in the evaluation of light therapy is difficult to explain, except on the basis of non-application of the principles originally put forth. The time has come when the prognostic and therapeutic ideas concerning the tuberculous bowel still held by many, must be modified, in spite of lack of adequate



evidence of anatomical check at surgery and post mortem.

Ulcerative tuberculous disease of the bowel is a complication, usually, of extensive pulmonary tuberculosis and, as in many complications in medicine, prophylaxis is the first line of defense. This often means stopping of the constant stream of tubercle bacilli to the intestine from cavitation and exudative lung processes by collapse therapy. Just as the treatment of laryngeal tuberculosis in advanced lung cases is collapse therapy, so the treatment of intestinal tuberculosis in such cases begins with collapse therapy; the intestine has small chance of healing when being fed, with literally, billions of organisms.

Let us say finally then that tuberculosis of the bowel should never more be allowed to progress to its late stages nor be accepted as one of a series of events in a terminal case, but should be treated intensely, expecting a cure.

### SUMMARY

Tuberculosis of the bowel is, in the majority of cases, curable.

It must, however, be treated reasonably early—just as in pulmonary tuberculosis the earlier the treatment is started the easier and the surer the cure.

The associated lung condition should be not too far advanced.

The accepted measures for curing tuberculosis of the lungs are not sufficient. An additional definite, but very simple, plan of procedure must be followed.

Bed rest, good food and fresh air, constitute the backlog of treatment; but in addition there must be used:

Light-therapy—preferably with the quartz mercury vapor lamp; soft, low-residue diet.

Excess vitamins—A, C and D provided by cod liver oil, with orange or tomato juice.

110 South Scott Street.

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Discussion found after Dr. Flinn's paper in next issue.

## HEAT IN PELVIC INFLAMMATION

(Description of Cheap, Efficient Apparatus.)

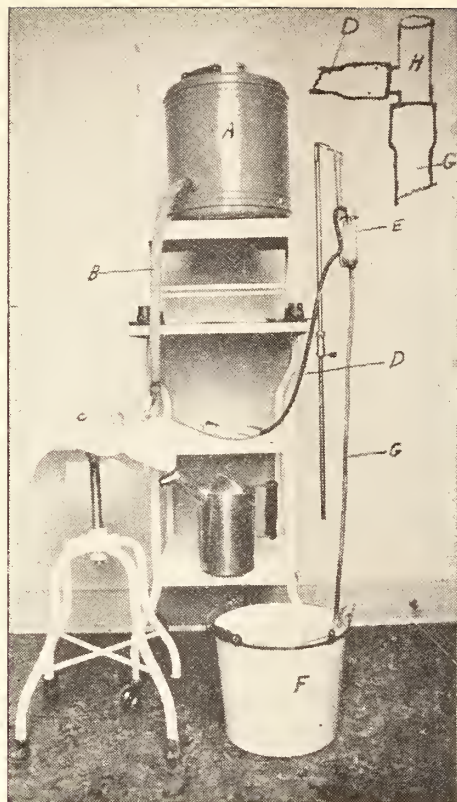
H. M. PURCELL, M.D.

Phoenix, Arizona

I wish to discuss the application of heat in pelvic inflammation in both the male and female. In the female this includes cervicitis, metritis, parametritis, salpingitis and pelvic peritonitis, gonorrheal and non-gonorrheal, acute and chronic. In the male, prostatitis and seminal vesiculitis. Heat in these conditions has been used since earliest times and is recognized as the best treatment in the chronic forms and, with proper application, has recently been found most efficient in the acute stage. A new method of application of heat in these conditions, together with apparatus recently developed to apply it, more particularly, the apparatus as developed by me is presented

By far the majority of pelvic inflammation is gonorrheal and it is in this class that heat seems to be specially effective. There is considerable disagreement as to its mode of action. The gonococcus is known to be easily killed by heat; but just what temperature is needed is set at widely different points by various investigators. To my mind it is doubtful if the heat developed even by this machine is sufficient of itself to kill gonococci in the tissues. An important effect is the increase of blood supply to the diseased tissues. This results in an absorption of exudates with relief of swelling and congestion, and rapid return to normalcy.

The mode of application of heat to the pelvis has varied from time to time. Hot sitz baths and douches were undoubtedly of benefit. Hot shot were at one time poured into the vagina to give prolonged heat and distention. Douches have been used with various kinds of applicators to close the vaginal introitus, since the vulva cannot stand as much heat as the vagina. This method has been unsatisfactory on account of leakage and the quantity of water required. I had one patient who made a complete recovery from badly infected tubes by using a five-gallon can as a container and adding hot water as she could stand it—in this way



- A. Insulated jug reservoir.
- B. Insulated conducting tube.
- C. Applicator, vaginal.
- D. Discharge tube.
- E. Discharge level, adjustable.
- F. Bucket to receive waste water.
- G. Tube to waste bucket.
- H. Glass tube as used in simplified discharge level, which may be used in place of E.

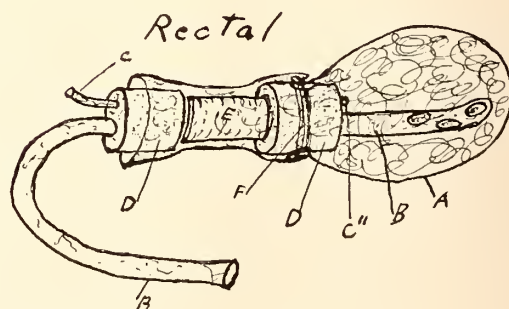
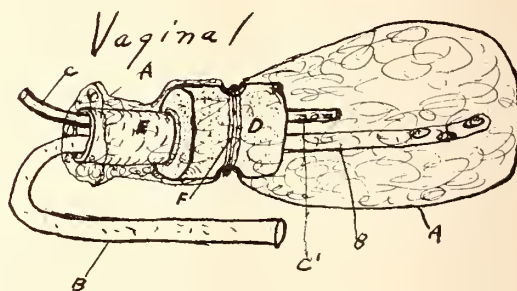
prolonging her douche to an hour. This is the only case, to my knowledge, with the perseverance necessary for such a procedure. Douches have, therefore, limited value in the development of heat to the pelvis.

Other modes of heat have had varied popularity. Diathermy, by pads to the abdomen and back, or with an electrode in the vagina or rectum, has been used. However, the heat developed at the desired point is not under control; it usually falls far short of that necessary, or results in burns. It requires expensive apparatus and much time for application. Radiotherapy is being developed but is still in an experimental stage. It also requires expensive apparatus and I doubt that it ever can be as efficient as the apparatus I shall describe. Infra-red generators have been used but the results are negligible. Generalized hyperther-

mia is probably of some value but cannot be carried to the high temperature possible with localized heat to the pelvis and apparently the higher the localized heat, within safety limits, the better the results.

I have always thought that heat to the acutely inflamed prostate was the ideal treatment. I have tried various methods of its application, including hot enemata, rectal irrigations, with and without prostatic applicators, infra-red, diathermy, with various applicators including some of my own design, and the Bradford-Lewis prostatic heater. None of these developed proper heat to the prostate as determined by experimenting on myself. I finally decided that hot water, if the temperature could be properly controlled and a suitable mode of application developed, would be the ideal treatment. After considerable experimenting I developed the present apparatus which I find very efficient.

The apparatus consists of a two-gallon insulated jug, an insulated conducting tube, an



- A. Condom.
- B. Outlet catheter, 22F.
- C. Inlet catheter, 12F.
- C'. End of catheter closed, openings on side.
- C''. Open end.
- D. Two hole rubber stoppers.
- E. Tubing to insulate catheters.
- F. Thread holding condom to stopper.



applicator encased in a condom, an outflow tube with adjustable discharge level, and a bucket to receive the waste. The insulated jug assures the temperatures remaining practically constant for a treatment of 45 minutes. The insulated tube to the applicator allows practically no drop in temperature of the water. The condom of the applicator is so thin that there is good conduction of heat to the tissues and, if little pressure is used, the bottom of the applicator assumes the shape of the prostate, insuring transmission of heat to all parts of the gland.

After using this apparatus for some time with complete satisfaction, I decided that it would be of great benefit in the female and arranged a similar applicator for the vagina. In this case I found that, by raising the outlet tube one foot above the applicator, a better distention of the vagina took place and allowed better transmission of heat.

About this time, some six months after the development of my apparatus, I received an advertisement of an Elliott machine with several references to articles published on his method of treatment. On reading these I found that his treatment consisted of essentially the same principles of treatment that I had been using, but that he pushed the temperature much higher. Some users claim that gonorrhea in the female can be cured by this treatment alone in about 30 daily treatments, and that it is of great benefit in all pelvic inflammation. His machine consists of a tank with electric water heater and thermostatic controls. There is a motor to circulate the water through the applicators. Both rectal and vaginal applicators are of rather thick rubber. Pressure meter, thermometer and valves are on the machine.

Treatment is started at 120 F. and gradually increased until a top temperature of 130 F. to even 135 F. is reached in 20 minutes and kept there for the rest of the treatment of an hour. This high temperature will not result in burns, it is claimed, if proper time for tempering of the tissues is given and there is proper distention of the parts—two pounds being recommended.

After reading these articles, I began using higher temperatures and found results much better and, although I cannot agree with certain claims made, I do believe that it is a

great forward step in the treatment of pelvic inflammation. I have been using this treatment for a year in salpingitis cases and, as a result have had no occasion to operate upon such a case. I am of the opinion that it will eliminate the necessity for such operations in practically all cases.

The following case history is rather typical of the results in acute salpingitis. Mrs. H. was seen on April 30, 1934, with history of discharge since last menses. Smears were positive for gonorrhea. There was a slight fever with slight tenderness and thickening in the right tubal region. She began menstruating the next day and the left tube became acute with temperature of 101 F. She was put to bed with ice cap and Fowler position with slight improvement but temperature remained about the same. Heat treatments were started on May 14, 1934 at a rather low temperature—about 114 to 116 F. in the vagina. This was repeated daily with little if any improvement. The temperature in the applicator was then raised to 120 to 122 F. with immediate improvement and return of the patient's temperature to normal after second treatment at this high temperature. Daily treatments were continued for a month. Smears were then negative. Examinations were repeated after each menstruation for six months with negative findings. Bimanual examination showed tubal regions normal. Patient was discharged as well.

The following illustrates the results with non-gonorrheal inflammation. Mrs. O. first seen on July 17, 1934, with acute generalized infection following instrumental childbirth two weeks before. Infection became localized in deep structures of left thigh, requiring drainage of a large amount of thick pus on August 11, 1934. On August 27, 1934, abscess had developed in right breast and was opened with drainage of thick pus. On August 29, 1934 tender mass appeared in right side of pelvis with temperature of 100.2 F. Heat treatments were started immediately and continued daily when possible. Temperature became normal in a few days and mass gradually subsided. Smears were negative for gonorrhea on this case. Without this treatment, I feel certain, the pelvic inflammation would have required drainage as had been necessary in the abscessed thigh and breast.

In the first case recited it is shown that in order to get proper results the temperature of the vagina must be raised to about 122 F. and I have found that a temperature of 123 F. will result in a burn of the vaginal wall. These burns, in my experience, were superficial and resulted only in a thin, profuse discharge without pain, but, nevertheless, are not desirable and seldom necessary. The high temperature of 130 to 135 F. recommended by the users of the Elliott machine refer to the temperature as recorded in the thermometer in the machine and are not the temperature applied to the vaginal wall; there are several feet of non-insulated rubber tubing and a thick rubber wall of the applicator which cause a difference of several degrees between the temperature of the water in the machine and the effective temperature against the vaginal wall. In the Elliott machine there is no method of determining the actual temperature against the vaginal wall which can be accurately and easily determined with my apparatus. The same is true as to the distention of the applicator—and so the vagina and rectum. The rectal applicator of the Elliott machine is flat and does not conform to the shape of the prostate.

I had the opportunity to test out two makes of the Elliott machine on acute salpingitis patients to whom I had been giving heat treatments for some time, and both stated that every pulsation of the motor-pump could be felt and was painful.

There are other disadvantages to the Elliott machine. It is very noisy. There is danger of electrical shock should the patient touch a "ground"—ordinary water being a good conductor of electricity. The two pounds pressure, should the outlet tube become obstructed, will build up to a much higher pressure, and this might easily rupture the vagina or rectum. This could easily take place by the kinking of the tube on movement of the patient. Practically constant attention is required with the Elliott machine while I spend only about five minutes actual time per treatment. The worst that could happen with my outfit, and it has not happened with me, would be a wet patient. Another item is the cost of the machine—the Elliott machine from \$150 to \$225, while an outfit such as I have described may be assembled by the doctor for a total cost of around 10 dollars.

I would sound a note of warning in the use of this method of treatment regardless of the type of outfit used. We are dealing with an agent which in order to get the best results must be used at a temperature closely approaching that which will cause destruction of tissue. This is not a treatment to be relegated to a poorly trained assistant but should have the personal supervision of the physician.

In conclusion, I believe that a new era has developed in the treatment of pelvic inflammation by application of an old principle—HEAT—in an improved manner. This method permits accurate temperature regulation, efficient transmission of the heat to the pelvis, and with a maximum of comfort—the patients frequently falling asleep during the treatment. It will make unnecessary the majority of abdominal operations in women and will restore fertility to many women otherwise doomed to a childless marriage. Likewise, it is the most efficient method, to my knowledge, of applying heat to the prostate and seminal vesicles.

#### DISCUSSION

**PRESTON T. BROWN** (opening discussion): The importance of conservative treatment in pelvic inflammatory diseases has been emphasized for many years. However, it is not yet entirely accepted. Dr. Purcell has made a valuable contribution in introducing this important subject. The value of heat in acute and chronic conditions has been shown for a long time, the electric oven of Gellhorn, and the various diathermy machines having been formerly the most effective method. The results reported following the use of the Elliott machine in the Bellevue Hospital and the Mayo Clinic surpass those obtained by any other method of treatment, and I have had sufficient experience with it to feel that these results can be obtained in general practice. Unfortunately, the machine is expensive, and the adjustments require close observation by the physician himself. The simple apparatus presented by Dr. Purcell overcomes both of these drawbacks; it is small, and it is practically self-regulating and absolutely safe.

In addition to the use of pelvic heat applied in this manner, I suggest the injection of non-specific proteins in those patients on whom the temperature is not markedly elevated. Here also the cheapest and simplest medium has been shown to be the best, namely, de-fatted milk sterilized in the physician's office. Dr. Purcell's contribution is a valuable one. I hope that many of the listeners will adopt it, and report their results at next year's meeting.

**DR. DAVIS:** I am especially interested in the common sense Dr. Purcell has shown in assembling his machine. Heat treatment in the pelvic cases



presented is valuable. Most of us are blameworthy for the methods employed in administering heat. They are not wholly efficient, and are costly. The great simplicity and low cost of this machine should give it wide use. I sincerely congratulate Dr. Purcell on his contribution to medical science.

DR. DUNCAN: Gee! that's simple now that I see it. This is far more simple than the Elliott machine which is rated the best for this treatment. The application of heat has been effective in pelvic and prostate inflammation. Dr. Purcell would render the profession an additional service by making drawings of his machine available to us all.

DR. O'LEARY: How sure can one be of the durability and dependability of the rubber condom used in your machine, Dr. Purcell? To avoid accident to the patient is of importance.

DR. WILKINSON: I have used hot vaginal applications for 25 years. I should like to ask Dr. Purcell why he does not use the usual hard rubber tip?

DR. PURCELL (in conclusion): Thank you, gentlemen, for your complimentary discussions. Replying to Dr. O'Leary. The condom is tested each time just before insertion as this is necessary to be sure no air remains in it—the slightest amount of air in the rectal applicator will cause it to burst on insertion. I boil the applicators after each treatment and the condoms will usually last a dozen treatments before needing replacement. Should one break it would only mean a wet patient but it has not happened to me. Answering Dr. Wilkinson as to the hard rubber double outfit to close the vaginal introitus, I have not used them but they would require at least five gallons of water which would be hard to keep at the right temperature. Leakage would be almost certain if any distention of the vagina was obtained and the vulvae cannot stand the high temperature necessary for satisfactory results. An important point with my apparatus is that not more than five minutes of the doctor's time is required for each treatment.

Note: Dr. Purcell will gladly send any physician complete instructions as to construction and operation of this outfit.

## HEALTH PUBLICITY IN NEW MEXICO HEALTH DISTRICT

SALLY LUCAS JEAN

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(Presented before New Mexico Public Health Association, Santa Fe, New Mexico, April 30, 1935.)

The initial step in any effort to improve conditions is to ascertain facts. This has recently been done in New Mexico regarding health and the facts disclosed are such that we

know there is a remedy at hand to prevent and cure each phase of the diseases found. The problem lies in finding the way to interest the people to apply these proper remedies.

Health legislation requires conviction on the part of the tax payers as appropriations are involved, and conviction is brought about through application of well known psychological principles. Legislation once secured, it is the business of the appointed officials to enforce the laws. All too often laws are changed and the funds requested slashed to an extent which prevents carrying out fully the law's intent.

All health officials are familiar with this situation, and have learned to adjust their efforts in enforcing laws to the funds made available.

Experience indicates that health is purchasable, but this is true only in proportion to the vision, training and human understanding displayed by leaders handling the funds.

The leader who understands human reactions, and has the scientific knowledge necessary to grasp the relative importance of the problems involved, can utilize small funds to a better advantage than the untrained official, with a narrow conception of human beings, can large sums. This applies not only to those at the top, but to all health workers.

Personal conviction is one important phase of securing legislation and appropriations as well as in the application of the laws of health in the lives of the people. Enthusiasm can be placed in importance next to knowledge of the subject, but unfortunately our medical and nursing schools do not include courses to develop enthusiasm. Indeed the tendency has been to disparage emotional displays of any kind in the scientifically trained.

Beliefs and practices are not effected without an emotional stirring of the individual involved, and it is incumbent upon health workers to keep this fact in mind. We have a great commodity to sell—health—but we all too often use the 1875 methods of merchandising.

Advertising experts boast of being able to sell any article, the sales being in proportion to the number of times the name of the article, with its advantages, can be placed before the prospective buyer. Variety in methods of presenting these virtues is the work of trained persons who first acquaint themselves with every advantage of the scientific product, as well

as its weaknesses. They also become familiar with the prospective buyer's tastes and ideas. Then the art of the writer, the artist, the layout staff, and the printer is brought into play, and what is the result? One hundred or one thousand or one million buyers have been secured. All of these people have been convinced that Mustard A is better than Mustard B, or that Collar A is better than Collar B. Your answer to this may well be that the health officials do not have the funds to pay for expert copywriters, artists, layouts and printers. That is true; but the principles used by the advertising expert can be understood even by an amateur through any of the authoritative books on the subject. Rare, too, is the locality where at least one socially minded advertising expert can not be commandeered for service to his community.

So much for the printed word—one only of the variety of methods used to convince the public, and one most often abused. The late Dr. Vaughan said “we will some day give as much space on the front page of our newspapers to health reports as we now do to sports or weather.”

Another well known psychological principle, in selling through conviction, is that of persuading the victim to “try it once.”

A well known health educator, representing officially a state extension division, proposed to a local medical society that each doctor donate enough time to health examinations of school children to demonstrate the value of a complete health examination of as many children as were examined, rather than a superficial inspection of all children at certain intervals as required by law. She urged that they supply a desirable “sample” of their work free to the parents of the township so that they might be convinced as to the value of a thorough health examination of all school children.

The result was an appropriation the next year to cover the cost of adequate medical service for the schools of that town.

It is necessary to have the goal set by the officials responsible for the program—the near and far objectives; but these must be placed before each individual composing the public, so simply and concretely with practical suggestions as to the part each member of the community is to play that they cannot escape

understanding the relation of the objective to their own lives.

For instance: A sewer system is desired, and it seems reasonable to expect that this may be brought about in five years. That presents the far objective to be sold to the public during the five years, but it is essential in the interval to have individual house owners erect sanitary toilets. This is the near objective which can readily be related to individual health and to life itself.

Hand washing facilities for the public outside of their homes has become an essential health factor; what do we do about it in public buildings—railroad stations, restaurants, hotel kitchens, schools and comfort stations? Again public health knowledge has far outstripped practice. Look into it for yourself. You will find cold water or soap or soap and water and occasionally towels but seldom warm water, soap and towels available. We are well aware that hand washing after toilet and before food is one means of breaking the chain of infection but it is rare indeed to have all facilities so conveniently arranged in public buildings that it is a pleasure to utilize them.

If it is a matter of expense make facilities available for a penny and create a sensitivity to the importance of hand washing and the public will pay for the convenience as they now pay sales tax—not willingly perhaps at first but appreciably as they grow accustomed to the convenience.

Perhaps you have a law that covers restaurant and hotel, dish washing; most states have such laws which are adequate but which they cannot enforce. Public opinion can be created through civic groups surveying conditions that unearth such loose practices that the citizens will demand the obeying of the law. Most of us object to eating from china, glass or silver that has been used by others but we accept soda water and other delectable foods from utensils which have not been scalded because the service looks sparkling and clean and a white coat or crisp uniform is worn by the attendant.

Years of experience in developing school health programs lead me to the belief that one important method of convincing the public regarding the value of public health measures and personal health practice is to train teachers to teach health to children as they



now teach the three R's. A good teacher will accomplish much: First, by firing the child's imagination regarding scientific facts as it affects the child's own health and second by inducing the child to try certain health practices which will in themselves result in the pleasurable reactions necessary to establish a habit. The influence of the child upon the home is enormous; one child convinced and willing to observe health laws furnishes a powerful lever to convert the adults of the family as to the desirability of public and personal health practices. If all who have had years of training and experience in the promotion of public and personal health were to expend as much energy on making health fashionable in popularizing it—as we now do in considering methods of curing disease, there would be less disease to conquer.

Sunshine—ultra-violet rays for instance—has become known to everybody as of a certain health value—indeterminate it is true, but having a distinct part in any health program. Soap and water cleanliness also has begun to take its place as a preventive and curative agent but we still have to endure in public toilets—even in our schools and in public conveyances—odors which are supposed to indicate disinfection, while we know that sunshine, soap, and water are all the disinfectants required.

When we can create in the mind of every child an interest in the scientific facts which lie back of all public and personal health measures and establish an attitude on his part which will insure a continuous awareness of the importance of scientific discoveries, we can then expect within a few years an adult world unwilling to follow health fads and fancies but rather supporters and torch bearers to insure a maximum of health for all the people.

**Detailed Suggestions:** Health Publicity in a New Mexico Health District involves all of the principles enunciated here:

1st—Determine the objective for the next five years then break this down into those phases needing immediate action.

2nd—Clearly state these to the people, emphasizing one at a time until interest is demonstrated regarding at least one important phase.

3rd—Credit this awakening interest so that the people who have become aware will know

their interest is being appreciated. The unawakened will respond to this subtle flattery and wish to get on the band wagon.

4th—Develop a sense of satisfaction in each accomplishment even though meagre on the part of those cooperating.

Examples: Children's efforts to follow the advice of health authorities should be played up by news items "such and such number of children in school; so and so have learned to use individual drinking cups or have had their tonsils out or have secured glasses. Mr. X has erected a sanitary toilet costing so much, giving actual figures."

5th—Furnish schools seasonable material on one subject at a time, which will guide the teachers in their efforts.

Example: Fly campaigns in the spring. Encourage surveys by school children to locate fly breeding spots. Send their reports to health officer. Of course, swat the fly and fly traps are of value, but the prevention of breeding is the important phase to be emphasized. Give publicity to the reports.

6th—Secure a specific space in each district for a bulletin board; report here weekly on health achievements. The people will be as interested as they are in "Mr. and Mrs. Brown visited Santa Fe last week."

Example: Committee meetings of the local people on any phase of health. Doctor's visit to school. Dentist's visit to school. Return from hospital. Cured Mr. K. New apparatus placed in certain store to improve sanitation. Screens have been put up on Mr. S's shop. The well has been cleaned. A new bucket for the well has been procured. A cover for the well has been made, etc., etc.

7th—Endeavor to get your goal only as high as it is reasonable to expect can be accomplished so that the people can observe the improvement and be encouraged by their sense of satisfaction in achievement. Strictly adhere to the rule of crediting members of the lay group with a part in the improvement, keeping the names of officials in the background.

This is difficult because the press prefer official names but the bulletin board offers an opportunity to do this and the local press will cooperate in time.

**Summary:** Laws covering personal and public health are important but they can only become effective when individuals composing the community desire them and are convinced of their value to themselves.

Health is purchasable and large funds are essential to furnish health protection and health promotion for all the people, but it is possible

to insure the greatest utilization of such funds, as may be available by convincing the people of the value of each health measure to themselves as individuals.

We can adopt the skillful psychology of the advertising expert in carrying to the people health facts in a way which will bring conviction to them. Enthusiasm for scientific health knowledge on the part of health workers is an asset of great value in bringing about conviction to the unenlightened and superstitious.

Trained teachers—teachers prepared to interest children in health and to furnish them scientific health knowledge—have an enormous influence upon the adults in the families from which the children come. One child interested in health and a knowledge of how to obtain it not only affects his elders now, but also assures more generous appropriations for public health when he becomes a voter.

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## PERTUSSIS BACILLI IN ETIOLOGY OF ASTHMA AND BRONCHITIS

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**J. MOTT RAWLINGS**  
El Paso, Texas

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The following is reporting the finding of pertussis bacilli in the respiratory tracts of four cases of adult asthma, showing a seeming cause and effect relationship.

We also have encountered 25 cases of severe bronchitis in which the bacilli seemed to play the predominant role.

Details of the cases will be given later in two successive reports. At present I shall discuss general aspects of the cases and treatment that has at least been partially successful.

Osler tells us of Balloneus who in his *Ephemerides* described whooping cough—in 1578. Brief accounts were given by Glisson and by Sydenham in the following century while Willis in his "Pharmaceutice Rationalis," second part, in 1674, gave a much better description and called it "epidemical disorder." The disease is contagious from person to person; whole schoolrooms, dwelling houses, and other localities, even pediatric wards may be infected by one child.

The epidemic form prevails in the winter and spring usually following epidemics of

measles. Children between the first and second dentition are most likely to be affected; sucklings are not exempt. Severe cases are described on those under six weeks of age; even adults are attacked with fatalities common among the aged.

The catarrhal period is the most contagious. The cause is stated as the pertussis bacillus, related closely to the influenza bacillus, and belonging to the hemophilus order of bacteria.

Osler describes emphysematous changes of lungs, broncho-pneumonia of fatal cases, and enlargement of tracheal and bronchial glands with constant presence of bacilli between the columnar cells.

Trousseau mentions the incessant character of the early cough and tells how severe the paroxysmal stage may be by describing the petechiae about the forehead, the ruptured conjunctival vessels, epistaxis, haemoptysis, occasional convulsions and paralysis. Hemiplegia occurred in a series of 79 reported by Valentine, and paralysis in three of 120 cases.

This would seem to point to the occasional severity of this disease among the complications of which up to this time, asthma has not been mentioned.

**History:** Each of the four cases of asthma gives a history of severe and protracted acute bronchitis, recurring one or several times each winter, and in two of the cases, since childhood. The asthma has been present 38 years in one case, three years in another and at variable periods in between in the other two.

Two of these four cases of asthma give a history of whooping cough in childhood. All of these cases are in adults, the oldest being 45 years of age. The rest are 44, 39, and 30 years respectively.

The asthma in each has been unrelated to foods, dust, or pollinations, animal danders, or rarer substances; but instead is associated in each case with a severe productive bronchitis, and somewhat chronically sore throat. In one case especially, the paranasal sinuses had been violently and acutely involved while in a second case a more chronic form of sinusitis has been associated with acute persistent pharyngitis involving the faucial areas, the posterior palate, and, at times, not only the post-nasopharynx but the larynx as well. The case of 38 years' standing frequently loses his voice and has signs of mild cardiac failure.



In each of these cases a culture was made of the posterior pharyngeal wall immediately following voluntary violent coughing. The swab thoroughly applied to the post pharynx, was immediately rubbed over the surface of a blood agar plate of pH between 6.7 and 7.0, made with nutrient bacto-peptone, bacto-beef extract, bacto-agar, and human blood, the blood averaging about five per cent of the final content. The plate is warmed to body temperature prior to the taking of the culture from the throat; it is placed immediately after inoculation in an incubator at 37 degrees Fahrenheit for from 30 to 48 hours.

In addition to whatever other organisms may be present, if *B. pertussis* is present, one then finds great numbers of dew-like pin-point colonies just barely visible to the naked eye.

The colonies are clear white, definitely circumscribed, with slightly raised edges and no tendency to become confluent. Probably the most outstanding characteristic is their small size and tendency to grow slowly even on blood agar. They later take on a slightly china-white hue and show definitely clear areas of hemolysis about each colony, this zone measuring one to two mm. at the most, increasing slightly with age. Hemolysis is absent in some colonies.

A transfer of a colony is made to a second similar blood plate for a pure culture. After a two or two and a half days growth one can begin identification of the organism.

There appears in each case so far studied a zone of hemolysis about most colonies, clear and not discolored. These organisms, unlike influenza bacilli, will grow on plain agar and ascitic agar and will, not turn litmus milk red, but instead, cause a strongly alkaline reaction. Following growth on nitrate agar, one finds no reduction to nitrites by the sulphanilic acid naphthylamin hydrochloric acid test. Salkowski's indol test is also negative.

The organism itself is a very small, gran- negative cocco-bacillus, tending to form chains in the older colonies and showing characteristically pleomorphism, with probably the greatest tendency toward a small ovoid bacillus without tendency to form pairs or groups of any kind but rather to occur singly. It is non-motile.

These small colonies outnumbered any and all other organisms on the original blood plates

—being anywhere from 20 to 100 times as numerous.

Other organisms were always obtained after violent cough; nevertheless the numbers of pertussis bacilli were always more than all other organisms among our positive cases. The commonest associated organism so far has been staphylococcus aureus.

It would be well here to state that in the absence of violent cough, culture of the throat is often negative for *B. pertussis*, whereas hard coughing produced a positive result. In one severe case of bronchitis associated with rhinitis, *B. pertussis* was cultured, following cough, from both nares as well as from the throat. We are led to believe that since hard coughing gives positive findings on the blood plate where there was a previous negative finding without the cough, these organisms must commonly reside in the tracheal and bronchial passages and not so commonly in the pharynx. In support of this view is work done by Dr. Wolbach, on the appearance of myriads of the Bordet-Gengou organisms between the cilia of the trachea and bronchi as well as in the wall of the bronchus itself and even at times beneath the basement membrane.

Therefore, if these organisms are found in such numbers in the bronchial secretions of children dead from broncho-pneumonia following severe pertussis, it seems not unlikely that in adults the organisms are likewise commonly located among the cilia of the bronchial passages.

Following the work of Dr. Sauer on the production of an effective pertussis vaccine made only from hemolytic strains with complete protection against contagion in 29 vaccinated children when exposed to active pertussis, we felt that this vaccine, containing 10 billion killed organisms to the c.c. might prove of value in cases of asthma with *B. pertussis* organisms.

Accordingly the patients were given 0.1 cubic centimeter of Sauer's pertussis vaccine as put up by Lilly. Injections of 0.15, 0.20, 0.3, 0.4, 0.5, 0.6, 0.75, 0.9, and 1.0 cc. were given subsequently at four-day intervals. A most gratifying result took place in all cases but one.

**First Case:** This man's asthmatic attacks were extremely violent; we had succeeded in relieving him completely of his nocturnal paroxysms. Breathing was quiet except on exertion

when he exhibited a cardiac complication. He still had a cough with slight temperature but no asthma; believing that sodium salicylate with wine of ipecac would be helpful, this was prescribed, following which he went into a violent paroxysm of asthma. Following this we learned of his sensitivity also to salicylates. The patient continued to return for a short period, and with treatment improved greatly, but later ceased to come and he could no longer be traced. His ultimate outcome is not known. He had an overwhelming infection on cough plate with *B. pertussis*. He had also a severe associated staphylococcus aureus infection. His complete relief, however, for at least a short period from asthmatic attacks that had formerly kept him gasping for breath every night from midnight to 6 A.M., was striking.

**Second Case:** Male, age 45, had whooping cough as a boy followed by severe bronchitis every winter until three years ago, when this became complicated by asthma attacks occurring regularly every night between 12 and three A.M., with exacerbations at other times on extreme exertion. Following the third injection of vaccine this patient ceased his asthmatic attacks and has not had a single recurrence in a period now of over six and a half months. His cough has improved as well as his general strength and sense of well being.

**Third Case:** White, female, age 39, for a period of around 17 years had acute colds with asthmatic breathing. Following an attack of so-called influenza in 1918, asthma became so severe that she could not lie down; she had no relief, despite radical operations on nose and sinuses for acute infections until bronchoscopic aspiration of the bronchi was performed. This gave almost complete relief from her severe and irritating cough and asthma; a second bronchial aspiration was performed within two weeks and a great deal more tenacious, thick, mucus was aspirated. She was greatly relieved for a period of months but gradually the cough and finally asthma returned. When we saw her six years after this bronchial aspiration she was suffering severely with asthmatic attacks, particularly at night. She gave no history of a relationship of asthma to food, pollens, dust or other allergic substances, but stated that whenever she had a cold the asthma would recur and that her asthma was prac-

tically always accompanied by catarrhal secretions in the head.

Examination of the pharyngeal secretions following cough gave a heavy growth of *B. pertussis*. Treatment of this patient with *B. pertussis* (Sauer) gave almost instant results. In this patient there have been no acute exacerbations, but she has had a few slight recurrences of asthmatic breathing, everyone of which was relieved by further use of pertussis vaccine.

**Fourth Case:** A man, age 44, gave a definite history of whooping cough at age of 10, asthma ensuing immediately and of such a severe character that his family physician found it necessary to give him morphine. This man was tested for various foods, pollens and at no time found sensitive. A differential count showed no increase in the eosinophiles. His constant complaint was of a sore throat and upper chest with irritating chronic cough. Wassermann and Kahn were negative. White count was not elevated but polymorphonuclear were increased. He was emphysematous and dyspneic particularly on exertion. The heart may have been dilated to the left, but no outstanding cardiac pathology was noted. In the summer of 1934 culture of his throat showed an overwhelming infection with *B. pertussis*. His throat was beefy red almost raw, the infection involving the posterior portion of the palate and pharyngeal wall. He was never free of bronchitis. Treatments were begun with pertussis vaccine in conjunction with ultra-violet light and a striking degree of relief was noted. Dyspnea was greatly relieved; much of the redness of the pharynx disappeared and a great deal of the chronic bronchitis was overcome.

In addition to these cases of asthma we have on record 25 cases of chronic bronchitis, in each of whom there has been cultured a fairly heavy growth of *B. pertussis* obtained by swabbing the pharyngeal wall following cough. These cases have all received *B. pertussis* vaccine (Sauer) and those uncomplicated by other infections have all shown excellent improvement.

One of these, the author, has had slight bronchitis recurrently since a boy and *B. pertussis* was found in his throat. Since treatment it has definitely disappeared.

Another case had an acute pharyngitis and



rhinitis and positive cultures were obtained from the throat and nasal passages. In this case, treatment brought complete recovery. He received one dose that was too much which for 24 hours caused an exacerbation followed by marked relief.

**Dosage:** It has been found best to start treatment with one-tenth of a c.c. of the preparation of Sauer's hemolytic strains of *B. pertussis* in the usual case, but reducing even this amount in the more acute ones. Injections are given at intervals of not less than 48 hours and better 72, increasing the dose each time by one-tenth of a c.c. until 1 c.c. is reached; then one can give 1.25 c.c., 1.5 c.c., finally arriving at a full dose of three c.c. unless complete relief of symptoms has already been obtained.

There is only one child in this series; she had a cough resembling the cough of pertussis without the whoop. Her culture was positive for *B. pertussis*. Treatment with *B. pertussis* (Sauer) completely relieved the cough, relief being marked after the third injection.

**Conclusions:** Four cases of asthma are presented from each of whom *B. pertussis* was obtained by culture of the pharynx following cough. The culture swab from each was immediately rubbed over the surface of a nutrient blood agar plate. This showed a growth usually in less than 48 hours. Indol, nitrite and litmus milk tests were made on each culture group for complete and positive identification. Gram stains and motility tests were also run.

Four cases of asthma were treated with Sauer's pertussis vaccine with most gratifying results in two, both having complete cessation of asthmatic attacks. The other two obtained partial relief only, but even these two cases showed a complete cessation for definite periods.

Twenty-five cases of bronchitis were studied, all of them showing *B. Pertussis*. The uncomplicated cases were relieved by the use of Sauer's pertussis vaccine.

(1) Osler: "The Principles and Practice of Medicine. 9th Ed. 122.

(2) Rivers: Johns Hopkins Hosp. Bull. 31:50, 1920.

(3) Ibid: Johns Hopkins Hosp. Bull. 33:149, 1922.

(4) Ford: Text Book of Bacteriology, pps. 117, 607 and 611.

(5) Personal Communication.

(6) Sauer, L. W., J. A. M. A. 101:1449, 1933.

## NEWS ITEMS

Dr. L. A. Hubbard and family of Albuquerque, have returned from a water and motor trip to the east coast through the Isthmian Canal and back from the west coast.

Dr. W. W. Heymann of Vermejo Park, N. M., is in Rochester, Minn., under treatment at the Mayo Clinic.

The County Board of Commissioners of Colfax, Harding, and Union counties, New Mexico, named to the District Health Board, Dr. C. R. Bass of Cimarron for a four year term, and Dr. C. E. Elliott of Raton for a two year term.

Dr. R. J. Stroud, Tempe, Ariz., addressed the engineers of Phoenix on his Mexico trip having just returned from Mexico City, after attending the International Rotary convention.

Dr. Edgar H. Brown of Phoenix, has closed up his office for the summer and gone to the coast.

Dr. George M. Brockway of Phoenix, was out of the city during July on his vacation.

Dr. Mayo Robb, Phoenix, Arizona, was out of the city during July on his vacation.

Dr. O. E. Utzinger of Ray, Arizona, spent several days in Phoenix during the latter part of July.

C. R. K. Swetnam, M.D., President of the Arizona State Medical Association, has appointed as advisory council to the Woman's Auxiliary the following physicians: C. A. Thomas of Tucson, Orville Harry Brown of Phoenix, and C. R. Swackhamer of Superior, Arizona.

Dr. Charles J. Logan, who had practiced medicine in Socorro for six years, died unexpectedly at his home there Monday morning. The funeral was held at the home Tuesday afternoon. Interment will be in El Paso Wednesday. Dr. Logan was physician for the American Smelting and Refining Company in Mexico for 16 years, and afterwards practiced in El Paso. His only survivor is his daughter, Mrs. Stella Boller. The cause of death was coronary occlusion.

Dr. C. L. von Pohle attended the American Medical Association meeting in Atlantic City this year. He addressed the Chandler Rotary Club regarding his trip. He lives in Chandler, Arizona.

Dr. R. D. Kennedy of Globe, Arizona, gave an address before the Globe Rotary Club upon the History of Medicine. Rotarians from Arizona, Oklahoma and Texas were in attendance.

Dr. C. M. Cron of Miami, visited the Rotary Club meeting at Globe, Arizona in July.

Dr. M. I. Leff of Glendale, Arizona, returned from Los Angeles the latter part of July with his wife and two sons, David and Jonathan. Mrs. Leff has been in New York for the past two years where she had their sons in school. Mrs. Leff and the boys made the trip from New York via the Panama.

The Maricopa County Medical Society held a meeting during July in which definite plans were formulated for giving care to the low income group on a mutualization plan. More will be announced at a later date.

# Southwestern Medicine

Printed by THE A. C. TAYLOR PRINTING CO., Phoenix, Arizona  
Published monthly for the Board of Managers of the four constituent societies.

T, 1935

No. 8VOL. XIX.

AUGUST

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## ORTHODOX MEDICINE vs. UNORTHODOX MEDICINE

While educating your patients upon the dangers and disadvantages of socialized medicine, it is well to educate them upon orthodox medicine. Tell them that the substandard practitioners of the healing art have never contributed to the scientific advancement of medicine. Show your patients the Abstract Department of the American Medical Journal to give them an idea of the vast amount of investigative work that is being done by doctors of medicine. Tell them that in contrast to this the publications of the cultists are filled with their own propaganda which for the most part, if not all, is entirely falacious.

Your patients probably do not know that the reasons for the existence of the cultists are that the standards for entering upon the study of medicine are so high and the medical courses require so many arduous years that many young men cannot make the grade. Then, too, the medical schools are able to accommodate but a limited number of students. The various cultists' schools are finding it profitable to educate young men and women as sub-standard practitioners—under various sorts of names.

A medical school requires a tremendous endowment; their professors are paid large salaries; the laboratory and clinical equipments are extremely expensive. The tuition paid by the medical students although high does not nearly pay for their education. The cultists' schools have make-shift laboratory equipment for the most part, their buildings are relatively inexpensive and only a small number of teachers are necessary, the students pay heavy

tuition fees and as a result the operation of a cultist school yields large profits. It has become a regular business, if not a "racket" to educate young men as sub-standard medical practitioners. A study of the catalogues from these various schools proves that the "sub-standards" are all giving their students a smattering of medical training and a very meagre training at that.

The students are not compelled to live up to requirements set up in the catalogue at least in certain instances. We wrote to one of the leading cultists' schools in the United States, under an assumed name, several years ago, stating that we had had a few months High School training, was a plumber's helper, and that we wished to study this particular branch of the healing art, if our education was adequate to admit us. A letter came back in a few days stating that we might enter the school but that we must make up our High School training, which might require a few weeks of night study. Other instances of their inferior standards are notorious. Any one desiring more data upon these sub-standard practitioners and their schools can get it from the American Medical Association.

## THE DISTRICT OF COLUMBIA MEDICAL ECONOMICS SECURITY ADMINISTRATION

This is a set-up analogous to that of San Diego for the specific purpose of taking care of three classes of patients: The indigent, the semi-indigent, and those who can pay reasonable fees on a deferred payment plan.

The ambulatory indigents are taken care of



at the various hospitals doing this type of work, and the Community Chest pays the hospital 50 cents for each visit of a patient—for its facilities, and not for medical services as these are rendered free by the medical staff. Those requiring hospitalization are sent to the municipal or contract hospitals of the District of Columbia. In the semi-indigent group the Central Administering Bureau decides how much of the regular hospital charge they can pay and the balance is paid by the Community Chest; the proportion paid by the patient is collected by the Medical Central Service Bureau which takes 10 per cent for expenses; medical services are rendered free to these patients. Members of the third group are referred to the Bureau by their own private physicians or if they have no physicians they are asked to select from a nominated list. The Bureau arranges with the doctor for the fee a patient is to be charged and then with the patient as to how this fee is to be paid and collects it. Although this system has not been operating a great while, it gives promise of becoming extremely practical if it is not already so.

### THE INFAMOUS BRINKLEY

It is reported by the Kansas State Medical Association Journal that J. R. Brinkley has lost his license to practice medicine in that state. The Board of Medical Registration revoked it and had to defend their action in court. Judge Johnson in rendering a decision had the following to say:

"Brinkley made the practice of medicine a business, adopting the usual present day methods of propaganda by use of the mail and radio for its development and extension.

"These methods are not only notoriously in conflict with the ethics of the profession, but in my opinion, in conflict with the best interests of the public, and irrespective of the value of the operations performed by him at the hospital for the amelioration of the prostate gland, or the benefits to individuals using prescriptions given them through radio broadcasts. The possibilities of injury to the general public resulting from such methods are so apparent that its mere statement is sufficient."

No doubt Judge Johnson's decision will strengthen the authority not only of the Board of Examiners of Kansas, but of other states as

well, in protecting the public from quacks and charlatans in the future besides giving judicial sanction to such of our medical ethics as are opposed to advertising and promiscuous prescribing.

### OFFICIAL VISIT TO AMERICA OF THE BRITISH MEDICAL ASSOCIATION

New Mexico and Arizona will have the honor of being visited by a group of distinguished physicians and their relatives and friends (about 130). A few hours will be spent by them in Albuquerque, N. M. on the tenth, and a considerable part of August 11th at the Grand Canyon. It is expected that the profession of Albuquerque will be on hand to pilot the members of the party about the city. A number of physicians of Arizona will be at the Grand Canyon to greet the distinguished guests.

The occasion for this visit is the Annual meeting of the British Medical Association in Melbourne, Australia, in September of this year. Other members of the Association are touring across Canada, and the parties will sail from San Francisco August 14th for Honolulu.

### THE UNITED STATES SUPREME COURT DECISION ON ADVERTISING DENTISTS

The State of Oregon has an act regulating the practice of Dentistry; a paragraph forbidding advertising of dentists is as follows:

" . . . advertising professional superiority or the performance of professional services in a superior manner; advertising prices for professional service; advertising by means of large display, glaring light signs, or containing as a part thereof the representation of a tooth, teeth, bridgework or any portion of the human head; employing or making use of advertising solicitors or free publicity press agents; or advertising any free dental work, or free examination; or advertising to guarantee any dental service, or to perform any dental operation painlessly."

A dentist practicing in Portland, Oregon, brought suit in the State Court against the State Board of Dental Examiners to enjoin the enforcement of the statute, alleging that it was repugnant to the due process and equal protection clauses of the Fourteenth Amendment, and impaired the obligation of contracts in

violation of Section 10, Article I, of the Constitution of the United States. The Circuit Court overruled this contention and sustained a demurrer to the complaint.

On appeal, the Supreme Court of the State took the same view of the federal question and affirmed the judgment. The case was then appealed to the United States Supreme Court.

The Court said that there was no harm in merely advertising prices for dental work, or in displaying glaring signs illustrating teeth and bridgework, but it seems that many of the practitioners were not willing to abide by the ethics of their profession and often resorted to such advertising methods "to lure the credulous and ignorant members of the public to their offices for the purpose of 'fleecing them.'" It is very plain that the Legislature was aiming at "bait advertising." The Court said further "Inducing patronage by representations of 'painless dentistry,' 'professional superiority,' 'free examinations,' and 'guaranteed' dental work" was as a general rule, "the practice of the charlatan and the quack to entice the public." The Court went on to say that, the Legislature was not dealing with traders in commodities, but with the vital interest of public health, and with a profession treating bodily ills and demanding different standards of conduct from those which are traditional in the competition of the market-place. The Court says that the "ethics" of the profession is but the consensus of expert opinion as to the necessity of such standards.

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### **THE COLLEGE OF SURGEONS YIELDS TO THE A. M. A.**

The College of Surgeons announced to the House of Delegates of the American Medical Association that hereafter it would leave the solution of economic problems to the general organization of the profession. This would seem to be a wise decision of the college and guards against conflicts in and of the organizations of the profession.

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### **ATTENTION DENTISTS**

We are mailing sample copies of Southwestern Medicine to each dentist of our district—Arizona, New Mexico and El Paso County. We have long held that the dentists should be more intimately connected with the medi-

cal profession than what they are. They should take an interest in medical work, and know a bit of what is going on in the medical world. The medical profession is probably much more concerned with, interested in and informed upon, the science of dentistry than are the dentists upon medicine.

In this issue we have an excellent paper by an outstanding dentist. There is also an interesting Court Decision concerning advertising dentistry. We believe the dentists will be interested in both of these. It is our ambition to have Southwestern Medicine become the official organ of the State Dental Associations in Arizona and New Mexico and of the Dental Society in El Paso County.

The subscription price of our Journal is not great and should deter no dentist from subscribing. Pending the time that this magazine is made the official organ, we should like to have the dentists send in their subscriptions. We believe that they will be well paid for the small outlay.

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### **PATIENTS NOW HAVE CHOICE OF PHYSICIANS IN NEW YORK UNDER WORKMAN'S COMPENSATION INSURANCE.**

For the first time in the history of Workman's Compensation Insurance in New York State—a matter of 24 years—injured employees have the opportunity of selecting their physicians and surgeons. The new amendment to the law went into effect July 1, 1935; it includes a number of other features designed to improve conditions. Physicians who wish to practice under the compensation act must be registered with the County Medical Society and approved by the Industrial Commissioner. Where a physician "exceeds the limits of his qualifications" his name may be removed from the list.

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### **ATTENTION, READERS:**

Existence of a journal depends to a large extent on revenue from advertisements. Continuance of advertisers depends on their patronage. Therefore, patronize those appearing in this journal. Detach and mail coupons attached to advertisements. Thus you may receive something for nothing. Readers are requested to observe these suggestions.



## PUBLIC HEALTH NOTES

**J. ROSSLYN EARP, Dr. P. H.**

**Director, New Mexico State Bureau of  
Public Health**

### Title VI. Economic Security Act

As one of the State and Territorial health officers who met with the Surgeon General of the United States Public Health Service in Washington, June 17 and 18, the writer swells with something like patriotic pride. Eight million dollars were put up for distribution. They were imaginary dollars, it is true, but Congress was and still is fully expected to make them real. Was there an undignified scramble to capture the most possible money each for his own state? Not at all. The conference was plainly much less concerned about who should spend this money, or indeed whether it all should be spent, than it was to see that whatever money is spent on subsidizing public health should be spent wisely. It was clearly evident to those present that a solemn opportunity had come to health officers to establish standards of health administration such as this country has never known. There is to be no political patronage, no distribution of graft. Money is for professional service and professional standards are to govern its distribution. The standards were set then and there by committees of the conference. State health departments must meet the following requirements:

A qualified full-time State or Territorial health officer.

Adequate provision for the administrative guidance of local health services.

An acceptable vital statistics service, which shall include an approved plan for the registration of births and deaths and prompt forwarding of information relative thereto to the Public Health Service.

An acceptable State public health laboratory service.

Adequate services for study, promotion and supervision of maternal and child health.

Special services for the study, promotion and guidance of local activities for the control of preventable diseases and for health promotion. This shall include an approved plan for the collection of reports of notifiable diseases and the prompt forwarding of information relative thereto to the Public Health Service.

Services for study, promotion and supervision of environmental sanitation.

County or district units that receive subsidy must be under the direction of a full time health officer and must include at least a public health nurse and a clerk for each county in the unit and not less than two public health nurses per unit. Health officers must meet the following requirements:

Basic educational requirements shall be:

The degree of Doctor of Medicine from a reputable medical school and eligibility to examination for medical licensure in the state where service is to be rendered.

Not less than one year of clinical experience gained preferably in a hospital of acceptable standards; preference shall be given to candidates whose clinical experience includes three months' hospital work in pediatrics and a similar period in infectious diseases.

Special qualifications:

Pending the development of a reserve of personnel having graduate training in public health work the following minimum qualifications shall apply as a standard in the selection of medical officers of health for jurisdictions of less than 50,000.

Candidates for appointment shall be not more than 35 years of age when first specializing in public health work; preference shall be given to candidates having had one or more years experience in the general practice of medicine.

Personnel selected shall already have had or shall agree to take before assuming duty not less than three months of special training in public health, of which no less than two months shall be organized instruction in an approved academic institution and one month in field apprenticeship in an approved local health organization.

Units having more than 50,000 population must employ health officers with prescribed training which in fact amounts to the course provided in a modern school of public health for the C. P. H. certificate. Provision is made under the act for training personnel but it is clear that the present postgraduate schools will be crowded to capacity for some years to come and that subsidized training will only be offered to younger men who can be expected to give in return many years of public service.

### NEWS ITEMS

Dr. Homer Powers, of Rankin, Texas, passed away recently.

Dr. John E. Bacon of Miami, Arizona, was in Phoenix, Arizona, recently on business.

Dr. J. M. Greer of Phoenix is on the Phoenix Aviation Committee, and he recently flew to Detroit on aviation affairs.

## JOHN MAXWELL PEARSON

Death claimed one of Maricopa County's excellent and most loved physicians on May 12, 1935. He was in Prescott attending a Rotary Convention with his associates. While on the golf course engaging in a game of golf he was suddenly stricken with a pain over his heart and died before he could be removed to a hospital.

Dr. Pearson had been a resident of Glendale, Arizona, for 25 years except for two years that he spent in California. He was probably as emblematic of the old school general family physician as has lived in these parts in recent years. To say that he was loved by the individuals of his community scarcely portrays the sentiments of his patients. During the two or three days over which his body laid in state at his home there came, bearing floral offerings large and small, persons of all colors, creeds, and nationalities, of which there are a great many in and about Glendale.

Max Pearson was born in Washington, D.C., the son of a United States Army Officer, May 11, 1885. He was just one day past his 50th birthday when he died. He attended the public schools of the District of Columbia, and graduated from the Georgetown University in 1907 with the M. D. degree. He later took post-graduate work at Harvard. Shortly after graduation he attempted to enter the United States



Navy, but upon examination it was found that his lungs were affected with tuberculosis, and he was advised to seek health in the West. Having a brother in the Reclamation Service employed on the Roosevelt Dam, he decided to locate in Arizona, and chose Glendale. He at once began to practice medicine and having regained his health he returned to New York City in 1909 and married Edith Mary White, the daughter of a prominent Episcopalian minister. To Dr. and Mrs. Pearson were born two children, a daughter, Jane, now Mrs. Edward W. Mehren, and a son, Peter, who is a student in the University of Arizona and who expects to go to Leland Stanford University to finish his medical course.

Dr. Pearson was active in all civic affairs of his community. He served as mayor of that city from 1914 to 1916 and for the last several years was Chairman of the City Park Commission. He was much interested in arboriculture and was instrumental in having planted a large number of trees now on the beautiful streets of Glendale. He was president of the Rotary Club at the time of his death. He was deputy county physician for a number of years. Dr. Pearson was a lover of beauty, which talent was beautifully displayed at his own home and garden. He was a member of the American Medical Association, and vice-president in 1934 of the Maricopa County Medical Society. He also was a member of the staffs of both hospitals in Phoenix and served on the executive committee of St. Joseph's Hospital. He was a member of the Phi Chi fraternity dating back to his college days. He was an affiliate of the Episcopal Church of Phoenix. As a boy he sang in the choir of St. John's church in Washington, D. C., known as the House of Worship for Presidents.

In addition to the members of the immediate family, Dr. Pearson is survived by his mother, Mrs. Martha G. Pearson, and a brother, Harry P. Pearson, both of Washington, D. C.

The Maricopa County Medical Society and the hospital staffs of the two hospitals generally recognize that they have lost one of their valued members, one whom they all loved and respected. As well as being a physician with a keen insight into medical problems and the psychology of his patients, his was one of the most lovable personalities of our membership.



The St. Joseph Hospital Staff, in recognizing its loss, and wishing to give evidence thereto, resolves to have this obituary spread upon its minutes and a copy of it sent to Mrs. John Maxwell Pearson and another to the mother, Mrs. Martha G. Pearson of Washington, D. C.

J. M. GREER

H. M. MILLS

ORVILLE HARRY BROWN.

Here are a few excerpts from Dr. Harley Yandell's *Bulletin Number Two of "Jokin' and Joshin'".* (It will be remembered Dr. Harley Yandell is the secretary of the Phoenix Eye, Ear, Nose, and Throat Society. He has just returned from a short visit in the East where he took the opportunity to attend a number of Clinics.)

"Dr. . . . told me that a doctor out here in Arizona tried to cause a malpractice suit against him. I said well . . . . There just ain't no such doctors here as that,—they have learned 'chickens come home to roost'. Just as sure as one doctor tries to get another in trouble, he's going to find out all about this 'chicken roost' business."

"While I was in Dr. DeMotte's office, I was told a Naturopath (that's one of Moeur's pals.) . . ."

"I met a fine doctor in St. Mary's Hospital. He's a radiologist, and soon as he found out I was from Phoenix, he began talking about 'pioneer Warner Watkins' . . . ."

"I asked some of my wife's relatives in Kansas City if they knew any big doctors there, and they said—yes, you'll pass right by that "*Robin*" doctor on your way to the general hospital. He's the one you know that the robin pecked on his window for so long and made him famous.' Well, sure enough, everybody knows him now. He's enlarged his office and home, too, since the robin got through peckin'! Funny how little things can make a doctor 'big'! On the contrary, I stood with my hat off and in semi-reverence in the little laboratory in St. Louis U. where Dr. Doisy discovered Theelin,—nobody knows him. . . ."

"Doc Brinkley bought a yacht and is out in the ocean with it now, I was told. He is to broadcast from out there in no man's water, mostly on prostates, and his group of assistants are to do the cuttin' down on the Rio Grande."

" . . . Don't do any tonsil coagulating, for all the 'big boys' back there say it's bad. Its just for *Moeur's pals*,—them that don't know where the jugulars are at."

## THE REPORT OF ARIZONA'S DELEGATE TO THE AMERICAN MEDICAL ASSOCIATION.

To the Officers and Members of the Arizona State Medical Society:

The first portion of this report will deal with the Convention, and the second with the proceedings of the House of Delegates.

The Atlantic City session was the largest and most successful meeting ever held, both in the number of physicians registered, and in the technical and scientific exhibits. Much was added to the success by the several hundred visiting Canadian physicians.

The hosts of the occasion, the New Jersey Medical Society, and the physicians of Atlantic City, were untiring in their efforts to provide every possible facility for contributing to the comfort, convenience and entertainment of their guests. The

large Convention Hall was adequate in every way to accommodate all the Scientific Sections and Exhibits, and provide large rooms in which the various sections met.

The technical exhibitions were unusually well appointed and prepared. Individual exhibits were tastefully displayed and were attended by efficient and courteous representatives of the various manufacturers and distributors. A remarkable group of educational exhibits were on display in the scientific section. These exhibits represented the efforts of many individuals, sections, departments and organizations, and covered many subjects. The value of these exhibits was greatly enhanced by the competent demonstrators who patiently explained and interpreted the displays to the hundreds of visitors each day.

Two outstanding social events of the meeting were held; in addition many smaller groups met as Alumni, of schools, fraternities, and joint meetings with members of the Auxiliary. On Monday evening, the New Jersey medical profession held a complimentary dinner and entertainment for the members of the House of Delegates, and officers of the Association. The chief speaker was Senator James Hamilton Lewis, who came to Atlantic City from Washington for the occasion. During his talk, he made an inspiring plea for peace after reviewing recent developments in Europe and elsewhere that have had a tendency to promote war. He paid high tribute to the medical profession, and emphasized the great importance it could play in molding public opinion, and asked the physicians to lend more effort and determine more policies relative to the solution of the many perplexing problems of the day. On Thursday night, the ball-room of the Ambassador Hotel was congested almost beyond capacity by the thousands who attended the reception held in honor of the Presidents of both the American and Canadian medical associations.

The most extraordinary meeting of the entire session, however, was held Tuesday night in the grand auditorium of the convention hall. This large assembly room, seating almost 10,000, was filled completely, with thousands outside trying to gain admission. On the platform were seated officials and high officers of both medical associations, and visiting dignitaries from abroad. At this general convocation, addresses of welcome were spoken by the mayor of Atlantic City, and by representatives of the New Jersey medical profession. Dr. Marcus W. Newcomb, President of the New Jersey Medical Society, in his speech of welcome declared that the medical profession is facing critical times, and after referring to several types of proposed social service legislation, which he declared were detrimental to the medical profession and to public health, warned the physicians that "if the doctors and allied professions don't wake up and elect people of high standing to public office, we shall have more unwise laws." He advised his audience to take an interest in public affairs, and declared that there should be more doctors in the Legislatures.

Another speaker, former Senator, and former Ambassador to France, the Hon. Walter E. Edge, told the physicians that world problems would have long been solved had the achievements of statesmen measured up to those of the medical profession. After briefly alluding to the "New Deal," Mr. Edge said "If one makes even a cursory examination of the pending so-called 'Social Security Program' you will note suggestions of state or national control in many of its provisions. When one considers the health of the nation, certainly that should be one activity that the politicians should let alone. These new ideas of state medicine to take the place of the independent doctor



appeals to me not at all. After reviewing some of the achievements of the medical profession, he said: "The voluntary service of the medical profession, of course, has no parallel in and will never receive the real appreciation it richly deserves. If statesmen could cure a few of the ills of the body politic in even slight comparison to the scientific advances you have brought about in physical cures, the world long ago would have solved many of the problems which affect us today."

Dr. James S. McLester, President of the American Medical Association, installed that night, read a paper on "Nutrition, and the Future of Man." He warned his audience that possibly 20,000,000 Americans are now living near or below the threshold of nutritive safety, through inability to obtain proper food. He cited the creation of a virtual new species of rats by diet alone. He traced the physical changes in alien peoples who grew taller and heavier after immigration to the United States. "It should be possible," he said, "to bring mankind to a higher level of physical development. In this respect the American people are not indifferent. Indeed, they are acutely food conscious, and will eat anything they are told is healthful." But to teach them what they properly should eat will require the combined efforts of a great many persons, notably the teacher, the physician, and the publicist. In addition, in order that the people within the means of their disposal, may get the foods they need, there must also be elicited the help of the economist and the lawmaker."

Dr. Jonathan C. Meakins, President of the Canadian Medical Association, read a paper entitled "The Breath of Life." He took his text from the second chapter of Genesis, pointing out that there is a close affinity between life, spirit and soul. From that point on, he carefully traced in masterly fashion the evolution of the respiratory mechanism from the single-celled organism to that of man, discussing in detail the physiology of respiration in all its phases, and reviewing our knowledge of this phenomenon to date.

After the presentation of a medal to the retiring president of the A. M. A., Dr. Walter L. Bierring, by the Chairman of the Board of Trustees, the general convocation closed with several chorus numbers by the Westminster Choir, of Princeton, N. J.

**RESUME OF THE PROCEEDINGS OF THE HOUSE OF DELEGATES:** The House of Delegates was a very smooth functioning machine, under the able leadership of the master parliamentarian, the Speaker, Dr. Warshius. There were few debates from the floor; the Reference Committees worked for hours over the various resolutions and matters of business, held open hearings, received criticisms and suggestions, and ironed out major controversial points, so that when their reports were submitted, quick dispatch of them was made without much discussion.

Resolutions dealing with radio broadcasting, contraception, medical care, teaching of medical economics, veterans' affairs, and many others were introduced by various state contingencies, or committees. Some of these resolutions were adopted as received, others were discarded or changed, and an attempt will be made in the succeeding paragraphs to record the proceedings:

**RADIO BROADCASTING:** The House of Delegates encouraged the Board of Trustees to do its utmost to help control broadcasting of fraudulent claims for pharmaceutical preparations, and to take all necessary steps, including a petition to the Federal Communications Commission of the United States, to eliminate the broadcasting of claims of alleged cancer cures coming from various Mexican Stations. The petition will ask the established authorities of Mexico concerned with the control of

broadcasting from that nation to exercise their power in discontinuing this menace to the citizens of both republics.

**Contraception:** Medical associations of New York, the District of Columbia, Arkansas, Maine, California and New Mexico, in addition to the American Gynecological Society presented resolutions relative to birth control. The official resolution finally adopted declared that "under the stimulus of large medical groups the general use of contraceptives is being advocated and encouraged despite the existing law, not only by the above mentioned groups, but by commercial interests as well," and under the present situation it added "ultimate effect of these measures is unknown if not questionable and should accurately and extensively be studied by the medical profession in whose care the health of the people rests." The resolution also declared that Federal and State laws regulating birth control advice which a physician may give to individual patients as therapeutic measures is "complicated and not well understood," and interpretations of these measures "are generally unsatisfactory." As a result of these facts the House of Delegates authorized the Board of Trustees to appoint a Special Committee whose duty it is to make a thorough study of this matter, and present a preliminary report at the 1936 session.

**Medical Economics and Sickness Insurance:** The Legislative Committee and Bureau of Medical Economics of the A.M.A. have both had exceedingly busy terms of office in studying the questions involved in medical economics and sickness insurance. The Legislative Committee reported in detail their activities in cooperating with the American Legion and Veterans' Bureau in relation to the medical problems affecting these groups. It described also the steps taken to bring the various medical organizations into accord with the policies of the American Medical Association relating to medical economics.

The Bureau of Medical Economics reported extensively on its studies of the various plans proposed or in actual operation over the country dealing with one type or another of sickness insurance, contract practice, hospital insurance, prepayment plans for medical care, voluntary budgeting plans, medical care of the indigent, industrial group services, and the like. In its report, it called attention to the 10 fundamental principles adopted by the House of Delegates in 1934 at Cleveland, Ohio, as basis for the conduct of all constituent bodies of the American Medical Association in formulating plans for social experiments in sickness insurance. It also emphasized the importance and usefulness of the 10 fundamental principles as sustained by resolutions adopted at the Special Session of the House of Delegates held in Chicago, Feb. 15 and Feb. 16, 1935. The principles and resolutions are too lengthy to quote here, but may be read in both the Journal and the Bulletin.

The House of Delegates at this Session did not alter or add to the foregoing, but adopted the two committees' reports without change or further recommendations. However, it seems wise to clarify the exact viewpoint of the House of Delegates at the Atlantic City Session, in its consideration of sickness insurance, and I shall attempt to do so in the next few sentences.

a. A single, universal or master plan cannot be devised at the present time to meet the varying conditions throughout the United States or even in different sections of individual states. As a substitute, it proposes the continuance and amplification of community sickness insurance plans best adapted to local areas, and under supervision of county or local medical societies.

b. The delegates sensed the failure of educa-



tional facilities to combat state and national measures, and emphasized the need for study of the problems involved in an effort to adapt the high purpose of medicine to the needs of the period in which we live.

c. It is recommended that both the Special Report of the Bureau of Medical Economics, containing an analysis of the various plans at present in operation, and report of the Reference Committee on Legislation, which were adopted by the House of Delegates, be carefully studied before any plans are considered. It does not encourage the adoption of any plan until thorough study demonstrates an actual need for a change. It urges a careful appraisal of the requirements and available existing facilities for creating new social machinery.

d. The American Medical Association does not contemplate the operation of any plans, except by local medical societies, and that in so doing must be guided by the 10 fundamental principles adopted in 1934.

e. It is urged that county medical societies feel a real responsibility when contemplating a consideration and adoption of local sickness insurance units, and that they submit their proposed plan to the officers and appropriate committees of the State and National Association for study, and that they confer with the National Bureau of Medical Economics for advise and counsel. In so doing, it is hoped plans embracing objectionable features, against which our profession as a national body is making such a determined and effective fight, will not be put into operation.

The Speaker of the House in his opening remarks advised the members to use their very best judgment in matters that relate to their state constitu-

ency, and not base their opinions on personal interests and feelings, and admonished each delegate to convey to his respective state a report on the activities of the officers, trustees, councils and bureaus.

The President of the Association, Dr. Walter L. Bierring, in his paper read at the opening of the House of Delegates' meeting reviewed a previous session of the A.M.A. in Atlantic City in 1904, when questions of medical economics and professional ethics were of great importance. He recalled that it was this year when the Council on Medical Education was formed, and he reviewed the work this committee had done toward standardizing medical schools. He cited the evolution in medical training, and the changes incident thereto relative to the economic and professional standing of the physician, in addition to extending the functions and activities of the A.M.A. in many new direc-

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tions. From that point on he recited the various factors responsible for the increase in cost of medical care; he traced the many surveys, studies, and reports that have had a tendency to promote proposals for compulsory health and sickness insurance, and he then recalled the efforts on the part of our Association to re-educate our membership as well as the public regarding the dangers and disappointments attending the operation of systems of compulsory health insurance in older countries. His paper suggested that at this time thoughtful men and women are becoming convinced that private practice will continue to promise the best service for all concerned and insure its high quality. Not one of the various measures that were presented to various legislatures with reference to health and sickness insurance were passed, and no national legislation favoring compulsory health insurance was incorporated in any measure presented to the National Congress. He recalled that certain inherent dangers were connected with the movements in the interest of public welfare connected with the present emergency period. In the first place he felt that organized medicine should be sympathetic with the humanitarian purpose of this movement, but should not entertain the same feeling toward the extension of the administrative features beyond the present emergency. And second, the new Social Security Bill before Congress, if passed, would delegate large sums of money for the use of each State in the matter of public health, and the medical profession should feel a definite responsibility to assume its share in determining between preventive and curative medicine, and to see that the interests of public health and the medical profession be equally protected.

(Concluded in September issue)

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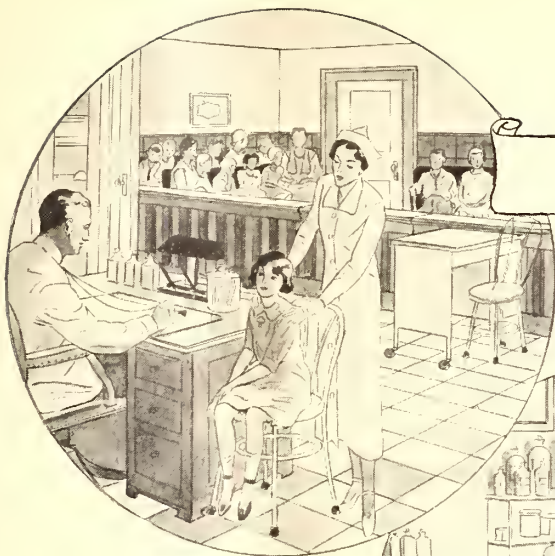


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(REGISTERED U. S. PATENT OFFICE)

VOL. XIX.

SEPTEMBER, 1935

No. 9

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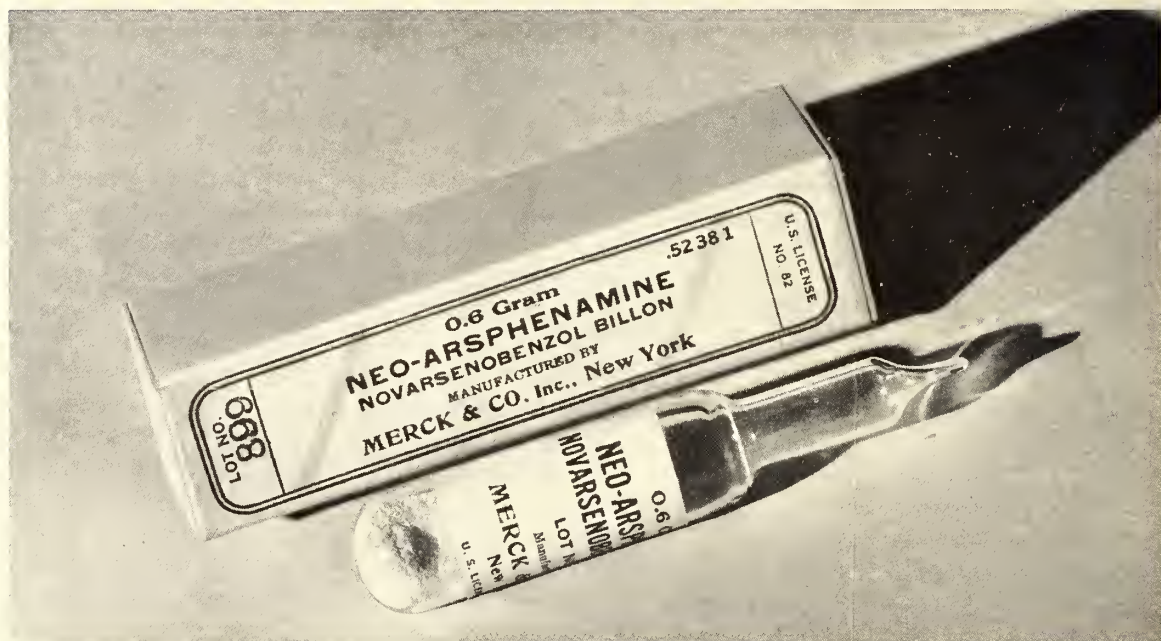
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VOL. XIX.

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● One question commonly asked concerning canned foods is whether or not the contents of the can should be removed to another container immediately after opening. This question has its origin in the belief that if food is allowed to remain in the can after opening, it will absorb an injurious substance from the can and thus become hazardous to the health of the consumer.

*For this belief there is not the slightest foundation of fact.* Its origin probably lies in the old "ptomaine" concept of food poisoning. Why it should persist in the light of present day knowledge is a mystery. The belief that food must be emptied immediately from the can has been as thoroughly discredited as the "ptomaine" theory of food poisoning (1).

Food poisoning is usually caused by the ingestion of food containing certain bacteria or their metabolic products. It is, in most instances, the direct result of improper preparation, handling, or storage of food (2) (3).

We have previously described in these pages how all canned foods are subjected to thorough heat treatment which destroys not only pathogenic bacteria and their products, but also the most resistant organisms which

may cause spoilage. Consequently, the freshly opened can is the cleanest container in the average kitchen.

There is, therefore, no reason from the standpoint of food poisoning why the food must be removed immediately after the can is opened. In addition, food will spoil no faster or no slower in the open can than in any other open container. The same precautions should be used in its preservation as are used for any other cooked food.

With certain foods, it is desirable from the standpoint of quality to remove the food from the can. Such foods, usually those of an acidic nature, may act slowly on the can after air is admitted and small amounts of tin and iron may be absorbed. The traces of these metals have been shown by a Government laboratory to be entirely innocuous (3), but iron in particular may impart a slight taste to the food.

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(1) *Journal American Medical Association*, 90, 459, 1573 (1928)

(2) *Preventive Medicine and Hygiene*, M. J. Rosenau, Appleton-Century Co., N. Y., 5th Edition

(3) *Food-Borne Infections and Intoxications*, F. W. Tanner, Twin City Printing Co., Champaign, Illinois

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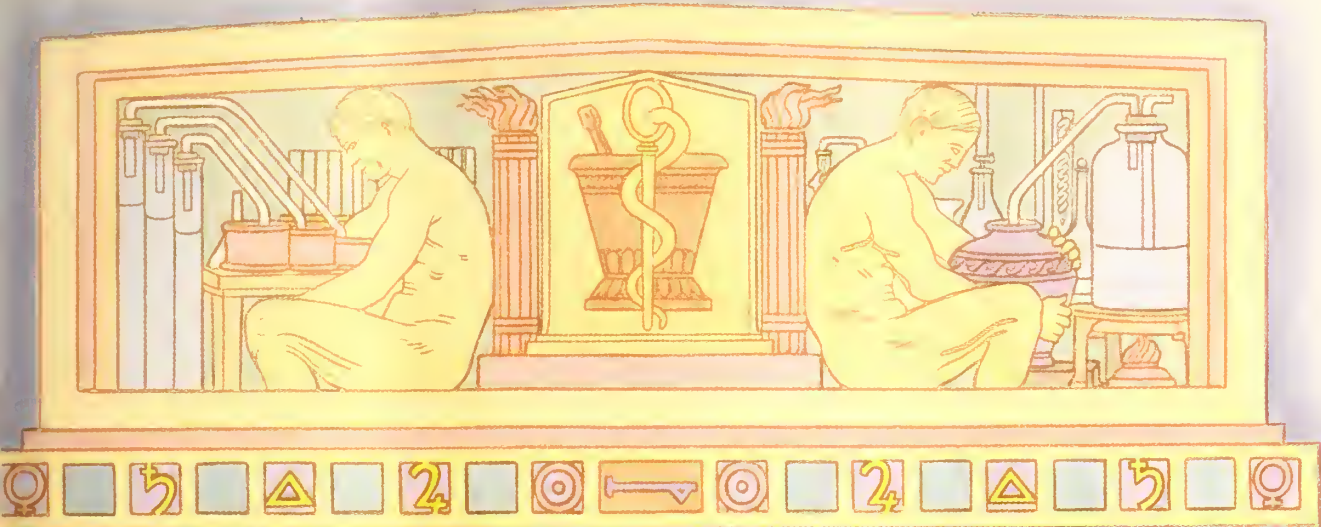


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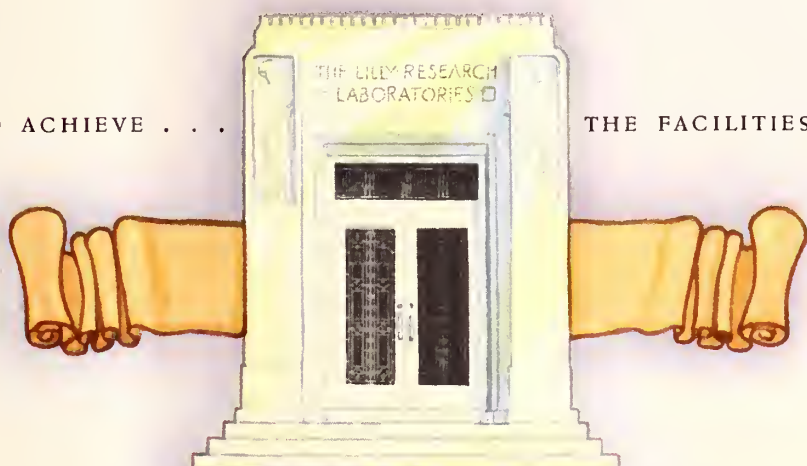
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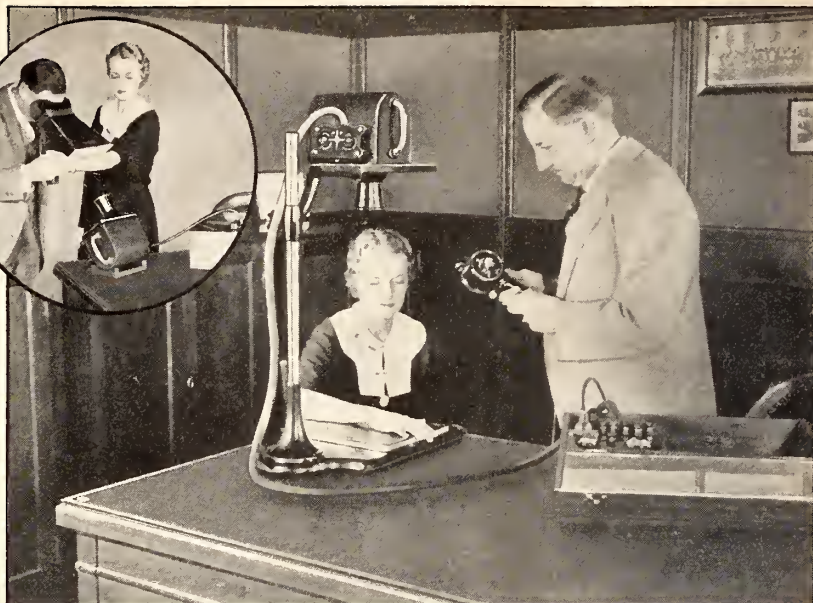
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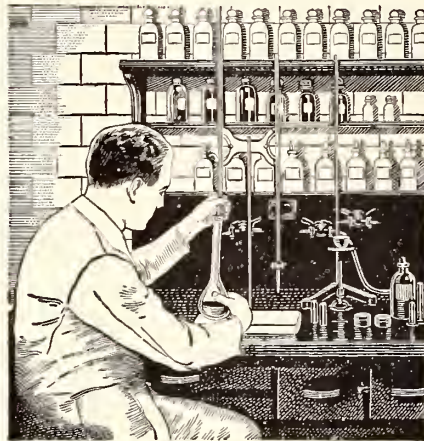
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VOL. XIX.

SEPTEMBER, 1935

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ANNUAL SUBSCRIPTION \$2

SINGLE COPIES 25 CENTS

Entered at the Postoffice at Phoenix, Arizona, as second class matter.

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## CALCIUM METABOLISM AND ITS ROLE IN THE HEALING OF DISEASED AND INJURED TISSUES

JOHN W. FLINN, M. D.  
Prescott, Arizona

When tissue in a living animal is destroyed healing may take place by regeneration or by repair. In regeneration, the destroyed tissue is replaced by a similar tissue. In repair, the destroyed tissue is never replaced, but the part is crudely mended by the remaining portions of the tissue being drawn together by strands of newly-formed, white fibrous tissue. This process is much like darning a hole in a colored stocking with white thread, and the effect is just about as unsightly.

Some of the lowest forms of life have the power of regenerating lost parts in entirety. In man, only such comparatively simple tissues as bone and cartilage are regenerated. Repair of higher tissues—muscle, lung and brain—is effected by the formation of scar tissue<sup>1</sup>.

**Regeneration of Bone:** The bony framework of the animal body appears to the uninformed to be composed of a lifeless, inert material akin to that of the steel girders which support a large modern building. Indeed it is difficult for the trained mind of the physician to entirely ignore these early impressions, and to remember that bone, like all other parts of the living body is subject to the constant tissue change which is indicative of life itself. So long as life continues, calcium is being constantly removed from bone, and new calcium deposited in its place. Bone is no more a permanent structure than is muscle, nerve or blood. The calcium molecule of bone is no more permanent than the protein molecule of muscle<sup>2</sup>.

Bone, like other animal tissues, derives its

nourishment (calcium) from the food. This calcium is absorbed from the digested food in the intestinal tract, in the form of calcium phosphate. In normal blood, the calcium level remains usually between nine and 11 mgs. per cent. The calcium is precipitated from the blood into bone, where it exists chiefly as the tertiary phosphate and the secondary carbonate. The waste calcium is carried in the blood to the bowels and kidneys where it is excreted as calcium phosphate<sup>3</sup>.

**Vitamin D:** The extensive investigations of Hess and many others in the study of rickets has proven conclusively that vitamin D is a most important factor in calcium metabolism. It is now generally believed that the functions of vitamin D are to facilitate the absorption of calcium and phosphorus from the intestine, and to maintain the level of calcium and phosphorus in the blood.

Therapeutic doses of vitamin D with a proper calcium and phosphorus content in the food, will raise the level of calcium in the blood, and cause a flow of calcium to the bones. Very large doses of vitamin D with high calcium diet will cause large quantities of calcium to be absorbed, raise the blood calcium above normal, and cause calcium to be deposited in blood vessels, kidneys, intestines and lungs. Large doses of vitamin D with a low calcium diet will cause a flow of calcium from the bones to maintain the calcium level of the blood, and result in the bones becoming as soft and fragile as in severe rickets<sup>4</sup>.

In the human body vitamin D is formed from the ergosterol of the skin by the action of ultraviolet rays. It has been definitely proven that ultraviolet radiation constitutes a specific cure for rickets, by stimulating calcium metabolism and causing a flow of calcium to the bones. A similar effect can be obtained by administering vitamin D therapeutically in cod liver oil, egg yolk and artificially irradiated substances.

One of the most striking manifestations of the powerful effect of sunlight on calcium metabolism is revealed in a study of the geographical distribution of rickets. For the most part this disease is confined to north and south latitudes 40-60 degrees. Even in these latitudes rickets is not prevalent in the summer months, when the children spend much time scantily clad out of doors. "It is the lack of ultraviolet light that determines the incidence of the disease. Where there is an abundance of solar ultraviolet rays, rickets is unknown".

Tuberculosis is another disease of the bones in which stimulation of calcium metabolism by ultraviolet radiation has shown marked beneficial effects. A study of large series of x-ray films extending over many years, at the Rollier Clinic in Leysin, Switzerland, strongly indicates that solar light produces as marked effects in regenerating bone destroyed by the action of the tubercle bacillus, as it does in curing rickets.

Calcium metabolism is most important in tuberculosis, not only in the ossification of diseased bone, but also in the calcification of caseous lesions in soft tissues. Most frequently calcium is deposited in poorly nourished or diseased tissue. The caseous necrosis in foci of tuberculosis is particularly prone to calcification. Calcium salts from the blood are attracted to the caseous mass and are deposited as calcium phosphate and calcium carbonate, in the same relative proportion as in normal bone. In some instances, where the caseous matter is penetrated by living fibroblasts, these cells so influence the reaction that ossification, instead of calcification, takes place. Ossification is frequent in healed primary foci of tuberculosis in the human lung<sup>7</sup>.

Since we began to use heliotherapy in all cases of pulmonary tuberculosis, our x-ray films show a much larger proportion of lesions healed by calcification.

We have now under treatment a case of Paget's disease (osteitis deformans) in which heliotherapy seems to be having a very beneficial effect. Already, there seems to have been regeneration in the areas of excessive bone and resorption in the areas of excessive bone formation.

From the standpoint of physiology, ultraviolet radiation is indicated wherever bone re-

generation is required. In any disease characterized either by bone regeneration or excessive bone formation, a careful study of the calcium metabolism should be made.

#### **Repair by the Formation of Scar Tissue:**

The origin of scar tissue has been a much debated question among pathologists for many years. Two schools of thought developed among research workers. The first school advocates the intracellular origin of scar tissue, claiming that its fibres are formed by a modification of the peripheral cytoplasm of certain cells called fibroblasts. The second school contends that scar tissue is developed from an exudate secreted by the cells and is definitely intercellular in its origin<sup>2</sup>. During the past several years, largely through the extensive and painstaking work of Baitsell and his co-workers, the intercellular theory has been gradually gaining favor, and today seems to be rather generally accepted on this continent<sup>9</sup>.

Baitsell's studies seem to indicate that the exudate secreted by the cells of tissues reinfected with tubercle bacillus (an exudative inflammation characteristic of these allergic tissues) coagulates by a process apparently identical with coagulation of the blood. In this way the exudate between the tissue cells is transformed into fibrin, apparently identical with that found in a blood-clot. "The character of the exudate at this stage of the infection . . . is essentially that of a fibrin net . . . composed of very fine filaments such as would be found in any normal preparation of coagulated blood plasma." "Long, delicate and typical wavy fibrils" are formed "directly from the fibrin elements of the exudate . . . just as has been previously noted in the case of clotted blood plasma." "A further stage in the process of fibrosis is . . . the general tendency of the individual fibrillae to be drawn together, so that they lie parallel to each other and thus form bundles of fibres, which often reveal the curved or wavy appearance so characteristic of certain types of connective tissue." "This . . . fibrosis is to be regarded as another step beyond that of coagulation. In a word, certain body fluids such as blood plasma, lymph and exudate undergo coagulation. The gel thus formed has, under favorable conditions, the further possibility of being transformed into a fibrous substance." By the use of the Mallory stain,



Baitsell has shown that there is later a chemical transformation of these fibrous elements of the exudate into highly developed collagenous fibres, characteristic of white fibrous tissue.

If we accept these conclusions of Baitsell that the formation of scar tissue is apparently identical with coagulation of the blood, we naturally turn to the extensive studies on the blood, in search of the true nature of coagulation.

**Coagulation of the Blood.** Out of the enormous amount of research work which has been done on the coagulation of the blood, a few facts seem to have been definitely established. "The phenomenon would seem to be essentially one of colloidal aggregation under the influence of calcium electrolytes." "The final step in the coagulation consists of a reaction between two substances thrombin and fibrinogen."

"Fibrinogen . . . occurs as such in the circulating blood. It appears to be particularly formed by the liver." "Thrombin . . . does not occur as such in the blood." "For its formation calcium salts must be present in a certain physical state." "Two other factors are required for the formation of thrombin, in addition to calcium." "The first of these occur in the blood stream and is known as pro-thrombin." Its main sources are the bone marrow and the blood platelets.

"The second factor that is necessary for the formation of thrombin is thrombo-kinase." It is found in blood platelets and tissue juices. "When the blood is shed . . . there occurs en masse an alternation of platelets which adds more pro-thrombin and thrombo-kinase to the blood, while additional amounts of the latter are also added from the tissues of the wound." "Once thrombin is formed in suitable amounts, it converts the fibrinogen, in solution in the plasma, into the insoluble fibrin or clot"<sup>10</sup>

It is at once apparent that two essential factors in coagulation of the blood are blood calcium and blood platelets. With a deficiency of blood platelets, either in number or in function, or a deficiency in the calcium content of the blood, satisfactory coagulation will not take place.

We have already referred to the effect of ultraviolet radiation on the calcium level in the

blood. Further studies by other research workers have shown that ultraviolet light produces an increase of blood platelets in the rabbit<sup>11</sup>, and that with increase of platelets the coagulation time of the blood is diminished<sup>12</sup>. It has also been demonstrated that administering irradiated ergosterol to white mice produces a marked increase in the blood platelets and a corresponding decrease in the coagulation time<sup>13</sup>.

Since the underlying factor in scar tissue formation seems to be a coagulation of intercellular exudate, apparently identical with coagulation of the blood, and since coagulation of the blood depends largely on the presence of an adequate amount of calcium and a sufficient number of blood platelets, and since vitamin D will increase the level of blood calcium and the number of blood platelets and so decrease the coagulation time, we feel justified in concluding that solar light probably plays an important role in scar tissue formation.

Our clinical experience, extending over a number of years, indicates that tuberculosis of the lungs, glands or kidneys seems to heal more quickly and completely, when heliotherapy and an adequate amount of calcium in the diet is added to rest and other recognized measures of treatment. We will later publish statistics to confirm these clinical observations.

## SUMMARY

**The Three R's of Healing: Resolution, Regeneration, Repair.** Resolution is seen in pneumonia and is not discussed in this paper. In man, regeneration is confined to comparatively simple tissues such as cartilage and bone; the higher tissues are repaired by the formation of scar tissue.

For the production of bone in the animal body, two substances are necessary, calcium and vitamin D. The source of calcium is the food, and the supply can be carefully regulated by diet. The amount of calcium available for bone production depends on the calcium level in the blood, and this can be calculated very accurately by accepted laboratory methods. There is one, and only one, known method of producing vitamin D, and that is by the action of ultra-violet rays on ergosterol. This reaction may be brought about by the direct effect of the ultraviolet rays on the ergosterol of the skin, or by feeding oils or other foods contain-

ing ergosterol, which have been naturally or artificially irradiated. By varying the amount and proportion of these two substances, calcium and vitamin D, it is possible to control bone production and bone resorption in the animal body.

Scar tissue is probably formed by a coagulation process, apparently identical with coagulation of the blood. Calcium and blood platelets are essential factors in blood coagulation. Vitamin D will stimulate calcium metabolism, promote blood platelet formation and decrease the coagulation time.

### CONCLUSIONS

Ultraviolet radiation promotes calcium metabolism and so is important in the regeneration of bone, and in the calcification of caseous lesions. It also probably assists greatly in the formation of scar tissue by raising the blood calcium level and by increasing the number of blood platelets.

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### DISCUSSION

(Dr. Watson's paper was published last month.)

DR. WATKINS: In commenting on Dr. Flinn's paper, I should like to express my appreciation for the stress placed by Dr. Flinn on the physiology of the subject. I feel we can not get back to the principles of physiology too closely. The study of calcium metabolism is of increasing importance as the recovery of all diseased tissue is dependent in part upon this element. I should like to request that you bear in mind the points brought out in Dr. Flinn's paper as a background for my paper on "Bone Physiology in Relation to Traumatic Injuries," which is to be presented this afternoon. Dr. Flinn has covered the subject necessary.

Dr. Watson's paper, "The Curability of Tuberculosis of the Bowel" has also been most ably presented. I am also going to digress in my discussion on this paper and refer to a phase of the subject which comes close home to me. I refer

to the part of the radiologist in diagnosis. You men who make your own x-rays are looking for a specific trouble with all symptoms and findings in your possession. I should like to suggest that you give the radiologist on whom many of you call for his work, the same information you possess. Let the radiologist know that you suspect tuberculosis of the bowel so he can look for that. The mucous membrane of the bowel is primarily a study in physiology. Therefore if intestinal tuberculosis is suspected, inform the radiologist of that fact. Until our technique was improved and perfected, we all had to depend upon symptoms. Now the condition can be visualized. The radiologist can find such a condition if he is informed that it is suspected. We would not find tuberculosis through the rectum ordinarily for we would not be looking for it. The average physician has too much confidence that the x-ray will reveal everything. This confidence is greatly appreciated by the radiologist, but a complete revelation will not come about unless the technician is supplied with full particulars.

Referring again to my appreciation for the consideration given physiology in these papers, I wish to state that the physiology studied in the medical schools is not what the physician is compelled to study now. I feel we should more and more consider physiology on at least an equal basis with pathology.

Both of these papers are of great importance and give members of the profession new and helpful, as well as interesting, problems to consider.

DR. FRED G. HOLMES: Both of these papers were splendidly prepared and presented and the doctors are to be congratulated. I will not attempt a discussion of Dr. Flinn's excellent paper except where he and Dr. Watson deal with the subject of intestinal tuberculosis. One is struck with the disagreement in treatment of this condition as presented by these two widely experienced physicians. If I caught their viewpoints rightly, Dr. Flinn would use solar radiation in all such cases while Dr. Watson, though feeling its value in certain types of pulmonary tuberculosis, believes that it should not be used in the treatment of tuberculous colitis, in which condition he regards the artificial ultra-violet as produced by the mercury-quartz lamp to be a specific. On second thought, however, these differences are no more striking than those found between authorities in the fields of finance, religion or many others and reflect the varied experiences of the investigators under different circumstances.

I am thoroughly in accord with the conclusion suggested by Dr. Watson's paper that tuberculous colitis is a curable disease. His paper is valuable in again stressing this point and emphasizing its early diagnosis and treatment. Regarding the use of artificially produced ultra-violet light as a new and specific treatment for the condition, it seems open to question. Dr. Flinn stresses the use of solar radiation and my own experience leads me to similar conclusions. I bought my first mercury-quartz lamp in 1921 and have had several of them in use during the last 10 years. However, in our hands they have come to be less and less of a factor in the treatment of tuberculosis, either intestinal or otherwise. Solar radiation seems applicable for such cases and has been extensively used.

One is struck with the marked decrease in the incidence of advanced intestinal tuberculosis. The many cases with severe diarrheas, etc., with which the ordinary tuberculosis practice 15 years ago was replete, are much diminished. Why is this so? Is it due to the treatment of the intestinal condition per se? I believe not.



In pulmonary tuberculosis, the trachea pours its secretions containing tubercle bacilli into the alimentary tract. Germs find their way up and down. The incidence of beginning laryngeal and of intestinal tuberculosis has been reported as almost identical. Laryngeal tuberculosis in its most aggravated forms has been strikingly reduced in the last few years. Is this due to treatment directed specifically at the laryngeal condition? It would seem not as during this time, local treatment of the larynx has been largely abandoned with the exception of the electric cautery in certain conditions. What then has caused this decrease in severe laryngeal tuberculosis? More adequate treatment of the lungs, I believe, and in most cases this means more efficient closure of cavities. Laryngeal tuberculosis is mentioned because it is little treated by ultra-violet radiation and being influenced by the same underlying condition, some inferences regarding intestinal colitis might be drawn.

The fight against laryngeal tuberculosis and similarly intestinal tuberculosis is won or lost on the battlefield of the lungs in large part no matter what treatment is used. It is very unusual to heal an intestinal or laryngeal tuberculosis in the face of an advancing pulmonary tuberculosis. On the other hand, it is exceedingly common to see either heal without specific treatment when the pulmonary tuberculosis has been improved by rest or specific treatment such as pneumothorax.

One must certainly use every method of proven value in handling tuberculous colitis—diet, medication, etc. To this is added a most valuable weapon as brought out in these papers,—that of ultra-violet radiation. I believe solar radiation is preferable where it can be obtained in sufficient amounts and with reasonable regularity. These all help in rendering tuberculosis more curable; but it seems that the deciding factor most commonly lies in what happens in the lungs. Our increasing ability to close cavities and heal the pulmonary tuberculosis has rendered the specific treatment of tuberculosis colitis less and less necessary.

DR. JAMES R. MOORE: Dr. Flinn has given most helpful and lucid exposition of the study of calcium metabolism. I was struck with Dr. Watson's preference for the violet ray. I trust it is not presumptuous on my part to take exception to the statement made by Dr. Flinn that where there is an abundance of sunshine rickets are uncommon. Several years ago it was my privilege to practice in Egypt for a period of three or four years. There is a greater percentage of sunshine in the Valley of the Nile than there is in the Salt River Valley. I was amazed at the prevalence of rickets among the young children, and even among the adults, of that region. At first I was at a loss to account for it. It came to me that the custom of dress had a great deal to do with it all. The Egyptian woman's dress is closely woven material dyed a deep black, the dress enveloping the entire body as well as the greater part of the face. Out in the strong sun no part of the rays can reach the body and rickets result. Children, as babies, are carried closely wrapped within the folds of these enveloping robes. Babies, too, are kept within the houses with little air and practically no light. Milk is also of very poor quality. The prevalence of rickets is easily explained when these facts are noted. When the children reach the walking stage they run outside, naked as the day on which they were born, and then receive a superabundance of sunshine. In conclusion I wish to state that these people respond well to the same therapeutics as employed in this country.

DR. WILKINSON: Something like 10 years ago, I bought three quartz lights from a young man who came into this state from Colorado selling these lights because of his great faith in their curative powers. This young man had had tuberculosis involving the bowels. He attributed his recovery to the use of the quartz light. I have found these lamps successful. All tuberculosis cases do not stand the violet ray at all well. The value of quartz is recognized for many conditions. Personally, I do not see why it is not more extensively accepted for treatment of tuberculosis.

DR. O'LEARY: In the Sanitarium at Long Island, New York, we learned that women are prone to swallow sputum. Men have always had, or assumed, the privilege of spitting willy-nilly. Women have always been reluctant to assume this habit, and many of the tuberculous swallow the sputum rather than expectorate even into the cup; tuberculosis finds its way into the bowel tract as a result. Dr. Edwin P. Kolb, superintendent of the sanitarium, has followed a routine diet and course of treatment which has been effective in these cases. A diet, consisting of no laxative foods but of plenty of cod liver oil and tomato juice, is routinely given. The quartz light is used for radiation. Here, where there is an abundance of citrus, I should like to see a routine diet of cod liver oil and the citrus juice used in conjunction with the quartz light and the observations reported at next year's convention.

DR. SCHOFIELD: I should like to state that I am interested in raising the calcium content of the blood by the use of vitamin D. At Boulder Dam we use gallons of irradiated oils in healing fractures. The level of calcium content is raised and healing made more effective.

DR. WATSON (concluding): I wish to congratulate and compliment Dr. Flinn on making an abstruse subject so very lucid and interesting. Discussion on my own paper has been rather of a disappointment to me in that I attempted to get over the idea that tuberculosis of the bowels is curable, rather than to stress a method of treatment. If I were to give any tuberculous person radiation, I should give solar except in intestinal tuberculosis. Artificial light is better for that.

DR. FLINN (concluding): Along with Dr. Watson I appreciate the discussions given. We assure Dr. Watson that the point of his paper was not missed. Dr. Watson's paper is a valuable contribution to the history of tuberculosis and will be recognized as such. It is because the two of us differ in the radiation used that this phase of the treatment came into the lime light. My reaction to the cases in Egypt as cited by Dr. Moore is that there has probably been a great lack of calcium in the diet of those people in addition to the lack of exposure to the sun's rays. I appreciate the contributory remarks of Dr. Schofield showing the value of calcium in other types of healing. Dr. Watson and I have been closely associated for a number of years. Our differences in methods of treatment have only served to keep this association permanently alive. Personally, I have come to the conclusion that there is more detriment brought about by use of solar radiation than by the violet ray. Manufacturers have learned that cooling systems must be used to offset the tremendous heat in connection with making lights. By the same principle, if you can cool your solar radiation, you can do away with its harmful effects. Choose the cooler seasons of the year and have the patient where there is a rush of air for the best results. We use solar radiation in this way and find it effective. I thank you for your complimentary attention.

## PUBLIC HEALTH NOTES

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### Professional Ethics

The United States Supreme Court in adjudicating the case of an Oregon dentist versus the State of Oregon not only affirmed the right of the State to restrict professional advertising (an important decision) but also interpreted the meaning of professional ethics in language that is worthy of permanent record.

"The community is concerned with the maintenance of professional standards which will insure not only competency in individual practitioners but protection against those who would prey upon a public peculiarly susceptible to imposition through alluring promises of physical relief; and the community is concerned in providing safeguards not only against deception but against practices which would tend to demoralize the profession by forcing its members into an unseemly rivalry which would enlarge the opportunities of the least scrupulous. What is generally called the 'ethics' of the profession is but the consensus of expert opinion as to the necessity of such standards."

### Prognosis of Melanotic Sarcoma

We were taught in medical school that: The prognosis of melanotic sarcoma is invariably bad; by the time the growth is recognizable dissemination by the blood stream has already taken place; surgery was a forlorn hope.

A much more hopeful doctrine is now promulgated<sup>1</sup>. Melanotic sarcoma is rare and the former pessimism may perhaps have been due to the fact that no writer on the subject had been able to amass sufficient practical experience. Mr.\* Handley has seen, in addition to hopelessly inoperable cases eight or 10 cases in whom the sarcoma was but moderately advanced and among whom he had three successes. He points out that 50 years ago cancer of the breast was also believed to be a hopeless disease and that was because of the inadequate removal of tissue. It is now known that both diseases spread by early embolic invasion of the lymphatic nodes. The requirements which he lays down for removal of a melanotic sarcoma are as follows:

A circle of skin at least two inches in diameter centered on the primary growth; a circle of deep fascia four to six inches in diameter centered on the primary growth; an area of muscle immediate-

ly beneath the primary growth; a band of deep fascia carrying the trunk lymphatics from the primary growth to the nearest nodes; the set of lymphatic nodes immediately above the primary growth, together with a circular area of deep fascia surrounding them, and likely to be permeated; the set of nodes immediately above the first set of nodes, if these latter are obviously enlarged; and all these in one piece.

The adoption of such a surgical technique would bring results, he believes, at least as good as those now obtained in cancer of the breast.

1. Handley, S. Prognosis of Simple Moles and Melanotic Sarcoma. *The Lancet*, June 15, 1935, p. 1401.

\*English surgeons prefer to be called "Mr.," however many degrees they may possess in medicine.

## THE JUVENILE OSTEO-CHONDRODYSTROPHIES

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(Read before the Arizona State Medical Association, April 25-27, 1935.)

This is a group of deforming bone diseases of childhood and adolescence which are of interest and importance because they are not uncommon. Every practitioner should be familiar with this group as their early recognition with appropriate treatment is in many cases necessary to prevent serious permanent deformity and in all cases may relieve pain and discomfort. The name osteo-chondrodystrophy refers to the fact that it is a disease of both bone and cartilage due to faulty nutrition from faulty circulation. Until recently it was called osteo-chondritis. The reason for the change in nomenclature will be brought out in the course of the paper.

The bodies of short bones or the epiphyses of long bones may be affected. Between the diaphysis and epiphysis is the epiphyseal line. This is a narrow plate of cartilage from which growth in length occurs. Bones grow by two methods: The laying down of cartilage to be changed by osteogenesis into bone; and a growth of bone without intermediary cartilage forming from the innermost or deepest layer of the periosteum, the cambium layer. Periosteum covers all bone except joint surfaces so



long bones increase in diameter by laying down bone without cartilage. The clavicle, metacarpal and metatarsal bones differ from long bones of the arm and leg in that each has only one epiphysis and epiphyseal line instead of two. Large tuberosities—apophyses—as the greater and lesser trochanters and the tibial tubercle is a tongue-like extension downward from the proximal epiphysis but occasionally it has a separate center of ossification. The short bones, as the carpal and tarsal of the wrist and foot, do not have epiphyses; they increase in diameter by periosteal growth. The vertebrae grow by both methods, as do long bones. The spine, for practical purposes a many-jointed long bone, must increase readily in length; growth occurs in the cartilaginous joint surfaces. The joint surfaces, however, are not ordinary joint cartilage but are similar to the epiphyseal lines of the long bones with the same power of growth. The vertebrae increase in diameter by periosteal bone formation.

Epiphyseal lines close in adolescence and thereafter the epiphysis or head is not separated from the diaphysis or shaft by a cartilaginous plate but is one continuous cancellous bone and growth is at an end. Repair when necessary in case of fracture or other injury is by periosteal bone formation.

A fundamental characteristic of the group of diseases we are considering is that they affect bones only while cartilage is being ossified. Many bones of the body have been described as being so affected and new ones are being added to the list. Theoretically, the disease may affect any bone of the body except the membranous bones of the skull; they only are never cartilaginous. The bones commonly affected are the vertebrae, the proximal head of the femur, the tibial tubercle, the semilunar bone of the wrist, the metatarsal-phalangeal joints of the first and second toes and the scaphoid and internal cuneiform bones of the foot.

The disease has certain definite characteristics irrespective of the bone affected: (1) It appears at a definite age period which is variable for each bone occurring only after cartilage has begun to ossify; (2) there is always a decrease in density of the affected bone in the early stages of the disease and a decidedly increased density in late stages, with necrosis of

the bone in irregular areas early and sometimes sequestral formation late when the circulation has been almost or quite cut off; and (3) deformity to a greater or less extent always exists. The spine and short bones of the wrist or foot show compression only, the proximal head of the femur both compression and separation and the tibial tubercle only separation. Deformity may increase until ossification is complete if pressure in the form of weight bearing is continued.

A short description of the commonly described forms of the disease in the order of being reported is as follows:

In 1903, Osgood of Boston and Schlatter, a German, simultaneously reported "Tibial Apophysitis." It is not uncommon, affecting mainly boys of 12 to 15 years of age, involving the tibial tubercle while it is undergoing ossification. Ossification begins usually at 12, and the epiphyseal line closes at 20 years; the active period of the disease then is between these years. The characteristic features are irregularity in density of the tibial apophysis with separation from the shaft through the epiphyseal line. This results in deformity through enlargement of the tubercle and widening of the epiphyseal line with more or less tenderness. The patellar ligament attaches to this tubercle and separation occurs through its pull in extension of the leg.

Kohler, a German, in 1908 described this disease of the scaphoid bone of the foot. It occurs in the fourth and fifth years of life because ossification of this bone begins about the fourth year. There is first an irregularity in density and then an irregularity in shape due to pressure which may proceed to the point where the bone is markedly compressed with greatly increased density. There is pain on walking and tenderness on pressure over the scaphoid without redness or swelling.

Perthes in 1910, and shortly afterward Legg and Calvé, all independently, reported what is usually designated as Perthes or Legg-Calvé-Perthes disease of the proximal head of the femur. It occurs between the years of one and 18, the period of ossification of this epiphysis. An irregular decrease in density is followed by a flattening of the rounded surface of the head with a widening of the neck which is probably due to end pressure, and a coxa-vara increase

in the angle of the neck on the shaft—due to downward pressure. Marked deformity will result, if weight bearing is allowed to continue, with so-called mushrooming of the head and at times a slipping of the epiphysis at the epiphyseal line. The deformity may limit markedly the movement of the joint.

Scheuermann of Copenhagen in 1921 described an abnormality of the vertebrae in adolescents of 12 to 20 years of age consisting of irregularities of the upper and lower margins with shortening of the anterior portion of the body resulting in a wedge-shape with the point of the wedge anterior. Calvé in 1925 described an abnormality in which there was compression of the bodies of the vertebrae to a marked degree in children of two to seven years. These are separate conditions. The ossification of the body of the vertebrae begins in the eighth week of foetal life while ossification of the vertebral epiphyses begins about the 12th year. Scheuermann's disease then is an epiphysitis affecting the ossifying epiphyses of the upper and lower borders while Calvé's disease is an affection of the ossification center of the bodies of the vertebrae. The different periods of ossification explain why Scheuermann's is a disease of adolescence while Calvé's is a disease of childhood. The deformity of Calvé's disease is much greater than that of Scheuermann's. The amount of deformity varies with the weight bearing being greatest in an active child or an adolescent who does heavy work or play or who is obese. Tenderness is present as well as pain on weight bearing in both conditions with rounded kyphosis in Scheuermann's disease and an acute kyphosis of the Pott's type in Calvé's disease.

Differential diagnosis is usually with tuberculosis. There is neither swelling nor fever and x-rays do not show actual loss of tissue but altered shape—a characteristic which is diagnostic as tuberculosis shows swelling, fever, and loss of bone tissue. Various conditions, however, must be considered as Kaufman says coxa vara, one of the outstanding characteristics of Perthes disease may be caused by puerperal osteo-malacia, senile osteoporosis, osteitis fibrosa, osteo-myelitis, arthritis deformans, fracture of the femur neck, traumatic loosening of the epiphysis and rickets. The patient's age with knowledge of the age at

which ossification occurs together with other manifestations of the above diseases usually make the differential diagnosis comparatively easy.

A great deal has been written as to the etiology of this interesting and peculiar condition with many theories and considerable experimental work. The theories worth considering group themselves under the following headings: Infection, trauma, mal-development, embolism, glandular dysfunction, and altered blood supply.

The "itis" ending of the name osteochondritis, which until recently was the terminology used for this condition, infers an infectious origin. Phemister and others have been able to isolate organisms usually streptococcus viridans. The results, however, are far from uniform or convincing as to a universal infectious origin. In some cases tubercle bacilli have been isolated and the chronic course suggests a peculiar form of tuberculosis but the pathology seems too atypical for acceptance of this as the usual cause. Pathological sections usually show an aseptic necrosis.

There is a history of trauma in a large percentage of the cases and it is evident that trauma plays its part in the disease. In most cases, however, it is not the primary cause but it causes deformity after the bone is diseased.

Mau has said that "physiological studies have shown that during periods of growth strength of bone is diminished and Berry believes that poor epiphyseal tissue plus trauma is the essential cause. It has been pointed out that Perthe's disease is considerably more common in congenital dislocations of the hip and in those with shallow acetabulae. Pathological specimens usually show an abnormal ligamentum teres but the chief characteristic is probably the lessened blood supply which will be considered under that heading.

Axhausen believes bland nonseptic emboli lodge in epiphyseal areas and with trauma and special strain set up the disease. The aseptic necrosis fits in nicely with this theory but the blood supply of the head of the femur is derived from three vessels and it is hard to conceive of emboli affecting all three vessels.

It is well known that thyroidectomy, and, or parathyroidectomy, causes a marked delay in calcification and callous formation. Rickets



with its lack of vitamin D causes typical bone deformities due to poor calcification. Obesity, a possible glandular dysfunction, predisposes through excessive weight. Castration is known to cause an overgrowth of epiphyseal cartilage. Sometimes there is such an overgrowth present in some of the osteochondrodystrophies. As most of these cases occur shortly after puberty hypofunctioning of sex glands may be a factor in some cases. It is conceivable that internal secretions may play a part though it is unlikely that they are the main cause.

Most of the recent investigators regard altered blood supply as the cause in the typical case. Zemansky has collected 12 reported cases of Perthe's disease including one of his own in which the heads were pathologically examined. He finds that they all show deformity of contour with the surface cartilage intact in all but one case. A previous inflammatory disease probably accounted for loss of form of the surface cartilage in the one case. The condition of the epiphyseal lines varied considerably. There was much destruction in the old cases while in three cases of short duration the epiphyseal lines were intact indicating that the disease is not primarily one of the epiphyseal line. The outstanding finding in the cases was the extensive subchondral necroses of bone and marrow and the presence of richly vascular granulation tissue. Indications of inflammation, leucocytes and plasma cells, were found in only five of the 12 cases. In two cases the ligamentum teres was absent, in two more it was much thinned out and in another had thickened blood vessel walls. His conclusion is: Disturbances of nutrition through vascular occlusion other than embolic best account for the pathological picture in Perthe's disease.

Schwartz, a pupil of Perthe's in 1914 suggested trauma to the vascular supply of the epiphysis of the head of the femur as responsible for Perthe's disease. He thought the first injury was to one of the vessels of the ligamentum teres followed by injury to the other two vessels from altered joint mechanics. Little attention was paid to his theory, probably because Perthes did not believe in it, until recently.

Graham performed experiments in which he took young goats of the proper age and severed the ligamentum teres and found aseptic

necrosis and slight flattening of the head to result.

Zemansky and Lippman<sup>1</sup> performed similar experiments upon young rabbits and got definite flattening of the heads in many and coxa vera in all cases. The pathology was an aseptic necrosis without granulation tissue but they regard granulation tissue as a manifestation of healing and that it probably would have come later. Neither was able to get these results after the epiphyseal line had closed.

It is known aseptic necrosis results in bone in which blood supply is less than tissue needs and that when the blood supply is lessened still more calcification results. This fits in with the increased calcification found in certain cases of advanced Perthe's disease and in the advanced cases of Calve's disease of the body of the vertebrae and Kohler's of the scaphoid.

It seems significant that the disease never occurs after closure of the epiphyseal line when the blood supply is much improved through extension of the abundant blood supply of the cancellous bone of the shaft into the head.

Blood supply may be a factor in an entirely different way in the cases of infection because of the fact that whenever there is a blood supply greater than the tissue needs the osteoclasts together with tissue halisteresis come into play and cause decalcification of the bone. Infection always causes increased blood supply at first but later decreased blood supply through partial or complete obliteration of blood vessels; this fits in with the course of many of these cases especially of the short bones. Trauma and fracture also cause an increased blood supply. There is always decalcification of fractured bone except where the blood supply is cut off as in sequestral formation when it is increased. Probably the breaking down of a vertebra in Kummel's disease occurring sometime after the fracture is due to increased blood supply for repair with decalcification and with weight bearing crushing the weakened decalcified bone.

It would seem that causes are not always the same but that fundamentally in each there is an altered blood supply in tissues which have great need for blood and in which the blood supply may be easily damaged. In other cases there may be too great a supply of blood causing so much decalcification that the bone will

not support the weight imposed upon it. Perhaps these changes may be brought about through various causes as infection, trauma, mal-development, alone or combined and with or without glandular dysfunction.

The treatment of these conditions has two purposes: To relieve pain and discomfort and to prevent permanent deformity. Deformity may spontaneously clear up with little or no treatment or may be permanent. Deformity in which there is almost complete compression of vertebrae or of the scaphoid bone, a marked mushrooming of the head of the femur without too much coxa vara or a separation of the tibial tubercle which is not a complete avulsion will respond to a few months' treatment of complete cessation of weight bearing on the affected bone, with or without the usual aids to bone calcification, with complete or near complete restoration of the normal configuration provided the disease has not been present too long with too much ossification.

After complete ossification no improvement can be obtained. Removal of weight can be attained by complete bed rest or appropriate casts or splints.

In Scheuermann's disease of the vertebral epiphyses a body cast or jacket is sufficient. This is a not uncommon disease of adolescence and its recognition with this treatment will prevent many of the cases of rounded kyphosis involving the lower dorsal vertebrae. Abstinence from heavy weight bearing will lessen the rate of deformity increase but is not sufficient to correct existing deformity. With lateral roentgenograms of the spine the condition is easy to diagnose if the possibility is kept in mind. It cannot be diagnosed from anteroposterior views. It is too often the practice not to take lateral views due to the fact that good lateral views are often difficult to get. Calve's disease of the body of the vertebra probably is frequently diagnosed as Pott's disease. In children of two to seven years of age with compression of vertebrae it should always be considered. Treatment is similar to that for Pott's disease, but the response is remarkably prompt as compared to that of tuberculosis. The prognosis is entirely different and the proper diagnosis may save parents much needless anxiety.

In the case of Perthe's disease a body spica can be applied or bed rest may be maintained

for a few weeks or months—six to eight weeks often sufficing. Ambulatory traction splints or crutches with high soles sometimes are sufficient with adolescents. If the patient is overweight he should be reduced as excess weight predisposes to deformity. Whitman believes that 20 per cent of these cases have sufficient deformity to warrant operation to correct the limitation of movement and he emphasizes the tendency to arthritis deformans in later life. He does not operate until growth is complete with closure of the epiphyseal line and then he reconstructs the head of the femur. Bozsán advocates the use of bone drill channels to increase the blood supply to the diseased areas during the active stage of the disease when progress seems too slow.

Osgood-Schlatter's disease usually responds readily to immobilization of the knee in a plaster cast for two to three months. Bozsán and O'Kane strongly advocate the making of one or two bone drill channels through the tibial tubercle into the cancellous part of the tibia beneath the tibial apophysis being a beak-like projection over the shaft, the channels are readily made by simply going through the tubercle into the diaphysis beneath. They claim subsidence of symptoms in three to four weeks and complete bony restoration as shown by x-rays as early as seven weeks.

In the case of the scaphoid some advocate putting the foot in a plaster cast while others use only a steel arch support. It responds readily to treatment after a few months with complete restoration. Most cases recover spontaneously without treatment but proper treatment often is needed to relieve pain.

### Conclusions

Practitioners should be alert to the various possibilities of juvenile osteo-chondrodystrophies.

Probably any bone of cartilaginous origin may under appropriate conditions be the seat of this condition. Those exposed to the greatest strain or weight bearing are, however, most subject to it.

A knowledge of the periods of ossification and closure of epiphyseal lines in long bones and of ossification in short bones will assist greatly in segregating the cases where this condition should be suspected.

Freer use of x-rays in chronic pain without



swelling or fever in a child or adolescent of the proper age will diagnose many cases which are now missed.

This condition should always be kept in mind in all cases of apparent tuberculosis of the bone.

Many cases recover spontaneously without treatment but the possibilities of deformity are such that proper treatment should be given. Treatment is also given to relieve the pain and discomfort.

## INTERPRETATION OF BLOOD CHOLESTEROL DETERMINATIONS

By ROLAND DAVISON, M. D.\*

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**Cholesterol** is an alcohol having the formula  $C_{27}H_{46}O$ . Although it was isolated in the eighteenth century from biliary calculi, very little progress had been made until recently in the study of its metabolism in the human body. Even now our knowledge of its behavior, regulation and significance in the blood and tissues, is far from complete.

In the body, cholesterol occurs in the free state and as esters. Although not related to the fats in chemical structure there is evidence that cholesterol is closely related to fat metabolism. It is an important constituent of bile, in which it occurs only in the free state<sup>1</sup> and apparently it confers on bile its ability to emulsify, and facilitate absorption of, fats in the intestine.

The development of chemical methods for the quantitative estimation of both total cholesterol and cholesterol ester has stimulated study of them; figures for the normal concentration of them and the variations from the normal in pathological states are available. Quantitative estimation of the total blood cholesterol and cholesterol esters are simple laboratory procedures which can be carried out in any well equipped clinical laboratory by trained technicians.

In the blood, cholesterol is evenly divided between the plasma and the erythrocytes.

Practically all the cholesterol found in the erythrocytes occurs as the free alcohol. In the plasma approximately 50 per cent occurs as free alcohol and 50 per cent as ester—a combination of the alcohol with fatty acid.

Different methods of estimation give variable figures, but in general the concentration of cholesterol in human blood plasma in the post-absorptive state varies between 160 and 190 mgm. per 100 c.c. of blood. With few exceptions, this concentration of cholesterol in the blood plasma is maintained at a constant level in any given individual.

**Race and Sex** show no influence in the blood cholesterol though in women there is a slight premenstrual rise which is followed by a fall below the average level of the individual concerned with the onset of menstruation<sup>2</sup>.

**Pregnancy:** Tremendous variations in the plasma cholesterol concentration may occur during pregnancy. Most women show an increase which is apparent at from 10 to 15 weeks gestation and this increase is maintained until several weeks post partum<sup>3,4</sup>.

**Effect of Meals:** After meals a rise in blood cholesterol occurs which varies to some extent with the meal taken<sup>5,6</sup>. This increase is largely in the ester form and is probably related to fat transport. Since meals may give temporary increase in cholesterol in the plasma, estimations should be made when the patient under observation is in the post-absorptive state.

During the early days of a fast, the blood cholesterol regularly increases, but when the fat reserves of the body have been exhausted, the cholesterol level sinks below the normal.

### DISEASE CONDITIONS WITH HYPERCHOLESTEREMIA.

Hypercholesteremia is regularly found in ketonuria, xanthomatosis, myxedema, severe diabetes mellitus, nephrosis, obstructive jaundice with severe damage to the hepatic parenchyma, Paget's Disease.

Xanthomata are small cutaneous or subcutaneous tumors, the cells of which are heavily laden with cholesterol and other lipoids. They are frequently seen only in patients having prolonged hypercholesteremia. Xanthomatosis or Christian-Schuller disease shows bone changes and is readily differentiated from other conditions in which hypercholesteremia is found by roentgenography.

**Myxedema** is always associated with hypercholesteremia. In the absence of the few other causes of hypercholesteremia, hypercholesteremia points more specifically to thyroid deficiency than to a lowered basal metabolic rate<sup>7, 8</sup>. Low basal metabolic rates are found in many diseases, notably in obesity, Addison's disease and pituitary chromophobe adenoma; but in these conditions, the blood cholesterol is usually normal<sup>9</sup>. Low metabolic rates are often observed after subtotal thyroidectomies. When normal blood cholesterol values exist in thyroidectomized patients with low basal metabolic rates, no clinical evidence of myxedema is found. On the other hand, clinical myxedema is never encountered without hypercholesteremia. Furthermore, the administration of thyroxine to patients with hypercholesteremia results in lowering of the blood cholesterol level<sup>10</sup>. Hypercholesteremia, therefore, is characteristic of thyroid deficiency and the degree of hypercholesteremia, is quantitatively proportional to the degree of existing hypothyroidism.

**Obesity.** Low basal metabolic rates are frequently encountered in obesity. Because of this finding, many of these patients have been labeled myxedema or hypothyroidism and thyroid extracts have been used for treatment. In uncomplicated obesity, thyroid deficiency does not exist, for numerous studies have shown perfectly normal blood cholesterol concentrations in such patients<sup>11, 12, 13</sup>. It is well to bear in mind, however, that not all myxedematous patients are obese. Myxedema is frequently encountered in patients whose weight is below normal.

**Diabetes Mellitus:** When normal blood cholesterol readings are present in diabetes mellitus, even though the fasting blood sugar is much elevated and persistent glycosuria is observed, the diabetes is essentially mild and the prognosis is favorable. When, however, there is persistent hypercholesteremia, the diabetes is severe and progressive. Temporary hypercholesteremia may be found in the presence of ketosis and is of less prognostic import since hypercholesteremia results from ketosis regardless of its cause. Blood cholesterol determinations furnish a much safer guide to the progress of a diabetic patient and give a surer index of the severity of the diabetes than blood

sugar determinations<sup>14</sup>. In advanced diabetes with arteriosclerosis, the esterified cholesterol fraction is from 10 to 15 per cent higher than that found in normal individuals<sup>15</sup>.

**Lipoid Nephrosis:** Nephrosis is always accompanied by hypercholesteremia; but the clinical picture, the deficiency in serum proteins, the changed albumin—globulin ratio of the blood serum due to the fall in plasma albumin, with the associated albuminuria, makes differentiation easy from other diseases showing hypercholesteremia. In myxedema, the only condition with which nephrosis might be confused, the serum proteins are increased.

**Disease of the Biliary Tract:** Cholesterol determinations offer an excellent means of differentiating jaundice due to mechanical obstruction, from jaundice due primarily to disease of the hepatic parenchyma. In obstructive jaundice, great increases in total blood cholesterol are found. The cholesterol esters are relatively or absolutely decreased depending upon the severity of the secondary damage to the hepatic parenchyma. In jaundice due to intrahepatic disease, the total cholesterol is normal or below normal. Whenever damage occurs to the hepatic parenchyma, i.e., in yellow atrophy and catarrhal icterus, a reduction in the cholesterol esters results which is **both** relative and absolute. This reduction in cholesterol esters parallels the severity of the disease process and when recovery takes place the cholesterol ester fraction of the plasma returns to normal levels.<sup>16, 17, 18, 19</sup> Although biliary calculi are composed largely of cholesterol, normal plasma cholesterol readings are frequently encountered in patients with cholelithiasis.

#### EFFECT OF SOLAR RADIATION ON BLOOD CHOLESTEROL.

Low basal metabolic rates have been reported with great frequency in the southwestern United States and the suggestion has been made that hypothyroidism is relatively more frequent in this locality than in other parts of the country<sup>20</sup>.

It has already been shown that basal metabolic rates do not always indicate hypothyroidism. However, increases in the cholesterol content of the blood plasma have been reported following ultraviolet radiations of man and experimental animals.<sup>21, 22</sup> Malczynski<sup>23</sup> reports a transient increase of the plasma cholesterol



from a single radiation of 30 minutes but whether repeated solar radiation over a long period of time results in permanent elevation of the cholesterol level is not known. If prolonged solar radiation causes a permanent increase in plasma cholesterol it is possible this increase is caused by depression of the thyroid function. The writer's observations, while few in number, show no constant increase in the plasma cholesterol resulting from repeated solar radiation of patients. Further observations are being made to determine the effect of solar radiation on the basal metabolic rate and the cholesterol content of the blood plasma—to be published later.

**Paget's Disease.** While Paget's disease is characterized by hypercholesteremia, the diagnosis is made by the bony changes.

### HYPOCHOLESTEREMIA

Cholesterol readings below normal are found in, cachexia from any cause, the late stages of starvation, hyperthyroidism, anemia, acute febrile infectious diseases, syphilis, leprosy, exudative tuberculosis, and epilepsy. During the initial stages of starvation, as previously stated, the plasma cholesterol is elevated; in the late stages after fat stores have been exhausted, hypocholesteremia is the rule.

**Hyperthyroidism.** Hypercholesteremia is characteristic of hypothyroidism; it is not surprising, therefore, to find the plasma cholesterol below normal in hyperthyroidism. The blood plasma cholesterol and the basal metabolic rate bear a reciprocal relationship when judged by average values, but individual relationships cannot be postulated with certainty, and the reduction of cholesterol does not always appear to keep pace with the severity of the thyrotoxicosis in individual cases<sup>24</sup>.

**Anemia.** Any severe anemia is accompanied by decrease in the plasma cholesterol content<sup>25</sup>. Considerable diversity of opinion exists regarding the significance of the hypocholesteremia which is observed in anemia and in most instances, the value of plasma cholesterol findings in differential diagnosis is denied<sup>26</sup>. Muller and Heath<sup>27</sup> present evidence which apparently contradicts the general opinion that the hypocholesteremia is related to the anemia per se and find the behavior of the plasma cholesterol in pernicious anemia differs with its behavior in the secondary anemias. Since per-

nicious anemia is readily diagnosed from the secondary anemias by the macrocytosis, megalocytosis, high color index and leucopenia which are invariably observed in pernicious anemia, until more unanimity of opinion exists regarding the plasma cholesterol readings in the anemias, it seems unwise to base any differential diagnostic value in anemias on changes in the cholesterol content of the blood plasma.

In the other conditions in which plasma cholesterol values are lowered, no diagnostic or prognostic significance can be attached to the finding.

### SUMMARY

Plasma cholesterol determination is a simple laboratory procedure which can be utilized to advantage in the diagnosis of disturbances of thyroid function and in measuring the response to thyroid therapy. It offers a ready means of differentiating simple obesity from obesity due to thyroid deficiency. Plasma cholesterol determinations have considerable prognostic value in diabetes mellitus and differentiate between mild and severe diabetes. Measurement of the total plasma cholesterol and cholesterol ester gives an excellent index of liver function and differentiates obstructive jaundice from jaundice due to destruction of hepatic parenchyma.

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## Unusual Allergenic Property of Autolyzed and Decomposed Proteins

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I have made certain observations, mainly upon my allergic self, which have convinced me that decomposed proteins are more likely to serve as allergens than are the respective unchanged or normally digested proteins. References in the literature support these observations.

My allergic reactions—all mild—consist of pruritis here and there about the body, usually about the wrists and hands, pharyngeal catarrh and irritation, acute and chronic rhinitis, and occasionally slight bronchitis and gastric distress.

My first observation resulted from eating an over-ripe cantaloupe, the inside of which was soft; it was freshly cut, however, and the rind was solid and intact throughout. The softening of the meat could have been due only to autolysis, as bacteria could not have had access to the inside of the cantaloupe. Immediately after eating it I began to cough from pharyngeal irritation; this persisted for about two hours in spite of efforts to control it. The experience was so unpleasant that I have not repeated it with over-ripe cantaloupe. I have eaten fresh cantaloupe repeatedly since, as I had before, without disagreeable results. I had a similar experience from an extremely ripe delicious watermelon.

I have repeatedly had disagreeable effects from ham—rhinitis, severe colds, pharyngitis, or severe cough. Ham may be prepared, I un-

derstand, in a manner that may afford opportunity for autolysis of the interior to take place before the preservative thoroughly penetrates it.

Two home-made wines produced gastric discomfort for me; with these I have experimented several times. Each time I had severe stomach ache. Other home-made and commercial wines have not given me this uncomfortable effect. Certain beers have given me pruritis.

On one occasion I took a dose of powdered pepsin which I knew at the time was not fresh; the result from this was a most annoying and immediate pruritis.

Cheese has repeatedly produced extremely annoying pruritis for me; occasionally I find a cheese which does not. Cheese owes its peculiar and alluring properties to bacterial growth and chemically changed milk proteins.

Venison has occasionally given me annoying pruritis. The animal is usually killed in the mountains where the task of removing it to an ice-box is difficult and takes from a few hours to one to two days. The Arizona sun is hot and therefore the venison is likely to have an undue amount of heat before it is chilled.

I have repeatedly observed that beef which is exceedingly tender is likely to give me pruritis. The first observation of this came last fall when, in the mountains on a hunting trip, I ate a sandwich, the important ingredient of which was extremely tender beef. It had been purchased in Phoenix. I can imagine that it was in the truck in the sun for a time before it arrived at the store 30 miles away, and that even after reaching the store the cooling system was not adequate to chill it thoroughly. After the cowboy got the meat, he may have delayed before getting it to his ranch and cooking it. I have one patient who has observed that beef kept in her frigidaire for 24 hours and then cooked has an untoward gastrointestinal effect, which a portion cooked and eaten the day of purchase had not had.

Dates are another food which are extremely prone to produce pruritis for me. Dates are invariably kept for protracted periods after being removed from the trees. Certain other cured foods, such as nuts and raisins, have given me disagreeable results which I could only reason were due to peculiar chemical



products from fermentation or autolytic changes.

I have confirmed many of these observations upon myself by reports from patients on their experiences.

**Discussion:** Although my observations are not as clear cut as laboratory experiments, the conclusion seems warranted that foods which have undergone decomposition from fermentation, autolysis, or bacterial disintegration are more likely to serve as allergens than are foods which are perfectly fresh. The inference is that the split products from autolysis, fermentation, and bacterial disintegration differ from those appearing in the course of normal digestion. The suggestion has been made that allergic reactions are due to an amine, perhaps histamine; autolysis carried to the extreme likely produces amines; amines commonly result from bacterial decomposition of proteins.

The assumption seems logical that food eaten perfectly fresh, passing through the stomach and lying stagnant in the duodenum or jejunum for hours without being churned and mixed with pancreatic and duodenal secretions, may undergo decomposition. The bacteria swallowed with food are at an ideal temperature for growth and would soon start bacterial decomposition, unless the normal digestive processes and peristalsis keep them under control. In other words, food may be eaten perfectly fresh and spoil in the alimentary canal before having a chance to undergo normal digestion.

Others have thought of spoiled or autolyzed foods as causes of allergic reactions.

Phillips speaks of a slowing of the bowel current as predisposing to the production of allergy. Barber says bacterially decomposed proteins of the intestine are likely to lead to allergic reactions. Holbrook and Gray write of alimentary putrefaction as primary causes of allergic intoxications. MacQuiddy and Baker found stools of allergies more odorous and acrid and displaying more fermentation than do normal stools. Jobling and Peterson say that autolysis produces allergens. Jack thought that asthma resulted from putrefactive products. Thomas found that decomposed hides and leather and glue are particularly prone

to produce allergic manifestations. Sulman holds that the gastrointestinal organisms may putrify foods producing what he calls "putrid colloid," which he has isolated; these colloids do not vary as to the source of the protein, but do vary as to the type of bacteria producing them. Walzer found that split-proteins, serving as allergens, may arise from cooking, digestion, or putrefaction. Charles Richet, Jr., believes that bowel stasis contributes materially to the production of allergens and administers one dram of mineral oil with each meal to overcome bowel stasis.

**Conclusions:** Autolyzed, fermented, or decomposed proteins are more prone to act as allergens than are fresh, unchanged proteins or normally digested proteins. Fresh foods may undergo spoiling in the alimentary canal before they have had a chance to undergo normal peristalsis. It would seem that in certain cases a mild bowel stimulant taken with food may prevent allergic reactions by stimulating peristalsis, mixing food and alimentary canal secretions allowing normal digestion and inhibiting bacterial putrefaction.

Another thought seems worthy of suggesting: Green fruits and vegetables as obtained from the ordinary green grocer probably have had hours of exposure to temperatures that promote chemical change. Canned fruits and vegetables are probably generally taken with more or less dispatch from the picking to the cannery where little time supposedly is lost in getting them into the can. May this be an argument for canned over fresh fruits and vegetables—unless they really are fresh? One wonders if the long time which cereals are kept before they are consumed may have something to do toward promoting sensitizations to them.

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ANNUAL REPRINTS OF THE REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR 1934, WITH THE COMMENTS THAT HAVE APPEARED IN THE JOURNAL. Cloth. Price \$1. Pp. 135. Chicago: American Medical Association, 1934.

Many apparently worthwhile articles for one or another reason are found not acceptable for inclusion in New and Non-official Remedies. The Council is careful to give full and careful reports for their action. Then, too, there are preparations which should never have come into existence; The Council has had to make reports upon these. The reports for the past year are given in this volume.

# Southwestern Medicine

Printed by THE A. C. TAYLOR PRINTING CO., Phoenix, Arizona  
Published monthly for the Board of Managers of the four constituent societies.

VOL. XIX.

SEPTEMBER, 1935

No. 9

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## The Annual Southwestern Meeting (Nov. 21-23, at El Paso)

Another fine clinical conference is being prepared for the fall meeting of the Medical & Surgical Association of the Southwest, to be held in El Paso on November 21, 22 and 23.

Dr. E. J. Cummins, of El Paso, is chairman of the Program Committee. With his subcommittees, he has been working assiduously for several months and the program is nearly complete. All the papers and addresses are to be given by invited guests. The program has been planned in accordance with the wishes expressed by the members of the Association. It is impossible to have every specialty of medicine represented on a program of that size, so that the preponderance of votes has been the guiding factor in building the conference plan. As was to be expected, by far the greater number of votes favored papers on general medicine and surgery, with the more important specialties having about equal votes in the choices expressed.

To lead the discussions on General Medicine, the committee secured Dr. Chas. T. Stone, Professor of Clinical Medicine at the University of Texas (Galveston). In addition to his set addresses and round table conferences, he will hold diagnostic clinics.

In the field of Allergy, an important adjunct to general medicine, Dr. Albert Rowe, of San Francisco, a well known authority in this field, author of an important text on the subject, has been secured.

Dr. James C. Masson, of the Mayo Clinic and Dr. Vernon Carlton Hunt of Los Angeles, represent the field of General Surgery and

Gynecology. They will lead discussions and give addresses on important phases of surgery.

Dr. Louis A. Buie, of the Mayo Clinic, will present some surgical phase of Rectal Diseases, an important surgical specialty in which much interest was expressed.

The specialties of Rhinology and Oto-Laryngology are of interest to many of our members and the discussions in this field will be led by Dr. Isaac H. Jones, Associate Professor of Clinical Medicine, School of Medicine, University of Southern California, Los Angeles.

Urology will be represented by Dr. Herman C. Bumpus, Jr., of Pasadena, Calif. This specialty ranked high in the interest expressed by our members.

It is expected that the specialty of Pediatrics will be represented on the program, but the leader for that phase of medicine has not yet been secured.

The Scientific Exhibit will again be in charge of Dr. L. O. Dutton, whose work was the outstanding feature of last year's meeting. Dr. Dutton has stated that the scientific exhibit will far exceed in size and interest the one of last year which filled the entire mezzanine floor of the Hotel Hussmann.

One evening session will be given over to the scientific program, probably Thursday evening.

At their meeting held in El Paso last January, the Executive Committee authorized a registration fee of five dollars for this meeting. The Membership Committee has been active throughout the year, and quite an increase in the active and affiliate membership has resulted. This meeting should be, far and away, the best ever held by the Association.



Dr. David M. Davis of Phoenix is president and Dr. James J. Gorman of El Paso is the president-elect, of the Association.

Detailed program of the meeting will be found in the October issue of this journal.

## Arizona Naturopaths Active!

The Naturopaths may now be full-fledged practitioners of the healing art simply by taking examinations under the law passed by the last legislature creating a board of examiners and defining naturopathy; or where are they?

"Section 5" reads: "Naturopathy defined. For the purpose of this Act, Naturopathy, which includes all forms of physiotherapy is hereby defined to be: A system of treating the abnormalities of the human mind by the use of drugless and non-surgical methods, and includes the use of physical, electrical, hygienic, and sanitary measures incident thereto."

"Section 6" reads: "Certificate to practice, application, fees. Any person who wishes to practice naturopathy or any branch thereof in Arizona, shall make application to the board for an examination not less than 15 days before the date of the next examination, and upon blanks furnished by the board, and, except as hereinafter provided in Section 8, . . . ."

"Section 8" says: "Certificate to present practitioners. Any person of good moral character, who has practiced naturopathy in this state continuously for at least five years immediately prior to the passage of this Act, and can prove by established records and affidavits his actual and continuous practice for that period, shall be entitled to a license to practice naturopathy; providing, however, such person shall pass a regular examination given by the board covering the subjects it may assign for such examination. . . . Practitioners licensed under the provisions of this section, shall, within thirty days after said license has been properly recorded, present same together with a fee of \$3.00 to the Arizona State Board of Examiners in the Basic Sciences at the University of Arizona, at Tucson, and the said board shall issue a Certificate of Registration in the Basic Sciences without examination in the same manner as heretofore issued to other practitioners engaged in practice at the time of enactment of . . . the Basic Science Law."

"Section 18" reads as follows: "Constitutionality; Partial Invalidity. If any clause, sentence, or part of this Act shall, for any reason, be adjudged by any court of competent jurisdiction to be invalid, such judgment shall not impair nor invalidate the remainder of this Act, but shall be confined in its operation to that part adjudged invalid."

These quotations are from the Arizona Statute as reprinted in a pamphlet entitled "Naturopathy in Arizona."

"Section 15" of the Basic Science Law reads: "Obtaining License without Certificate; Penalty. Any person who shall obtain or attempt to obtain a license to practice the healing art or any branch thereof from any board authorized to issue any such license, without presenting to said licensing board a valid certificate issued by the state board of examiners in the basic sciences as by this act required, shall be guilty of a misdemeanor and shall be punished therefor by a fine not exceeding one hundred dollars or imprisonment in the county jail not more than three months, or by both such fine and imprisonment."

"Section 16" reads: "Issuing Invalid Certificate; Penalty. Any person who knowingly issues or participates in the issuance of a license to practice the healing art or any branch thereof to any person who has not presented to the licensing board a valid certificate from the state board of examiners in the basic sciences, or to any person who has presented to such licensing board any such certificate obtained by dishonesty or fraud, or any forged or counterfeit certificate, shall be guilty of a misdemeanor and shall be punished therefor by a fine not exceeding one hundred dollars or by imprisonment in the county jail not more than three months, or by both such fine and imprisonment."

A small pamphlet entitled: "Naturopathy in Arizona, Information Concerning the Law, Rules and Regulations of the Board of Examiners," announced as issued by Arizona State Board of Naturopathic Examiners has come to our desk, along with a blank on which to make application for Naturopathic examination and license.

The blank at one place reads: "At present I hold Basic Science Certificate No. . . . , Dated . . . . , licensing me to practice . . . . (name of Healing Art)

in the State of Arizona."

Another section reads: "I have been practicing Naturopathy or a branch thereof . . . . (specify which branch)

The blank also says: "I have completed courses in the following subjects:" The list of subjects reads like a medical course of study. There are several differences. For example, there is "drugless gynecology" and "drugless therapeutics" and "manipulative and adjustive Technic."

The sections we have quoted from the Naturopath Law seem to be the gist of the law. It will be observed from reading sections six and eight that the law disregards sections 15 and 16 of the Basic Science Law. Since the Basic Science Law was passed as a referendum measure and approved by the people, it would seem that sections six and eight must be unconstitutional and that the naturopaths, in order to be licensed by this law, will have to take the Basic Science examinations. The Chiropractors, however, who are already licensed by the Basic Science Board, can probably take the naturopath examination and become naturopaths. A phase of the law that seems to be a misnomer is that it may compel masseuses, persons who are working under the directions of physicians, to take examinations in their "branch of naturopathy" as defined by the law. At any rate, the naturopaths have been visiting the masseuses of Phoenix, we are reliably informed, and telling them that they must take the naturopath examination or they will be put out of business. We wonder just how far the naturopaths will have to go to constitute a violation of the Basic Science Law rendering them liable to the penalties of that law.

Undoubtedly there will be a test case in

court on this Law. Whatever the outcome, it seems that we are safe in saying that the Governor made a mistake by not vetoing this bill. Giving sub-standard practitioners the rights provided in this law is certainly inimical to the best interests of public health.

### **SOCIALIZED MEDICINE AND THE PHYSICIAN**

We have endeavored to present from time to time such facts as come to our attention on the question of state medicine so that our readers may be somewhat informed upon the subject. In this issue is published a book review of a book entitled "The Doctor's Bill." We believe the book review is worth reading and certainly the book is worth reading.

Is the reader keeping himself informed upon these proposed changes in our methods of practice? Have you discussed the subject with your patients? Have you been thinking about the best method of giving medical care to the indigents? Have you been thinking about the best method of giving care to the low income group? Should the physician be recompensed by the state for these, and to what extent? Upon your answers to these questions and the answers of organized medicine will doubtless depend whether we have state medicine forced upon us. In case state medicine comes, the patient will have his physician chosen for him by political leaders. Have you informed your patients of this fact? The cost of medical care will be much increased because a large organization will be required to administer the funds and the system. Have you told your patients about this?

There are large funds set aside for the specific purpose of "getting" state medicine throughout the United States. The persons who are actively fighting for state medicine are not physicians and certainly not among the suffering public. For the most part they are well meaning individuals with altruistic spirits. It is not fitting to bemean these individuals because in the main bemiring statements against them would be slanderous; of course there are those who expect to profit in case state medicine comes. Have you told your patients about these? Do your legislators or those who will be your legislators know your views upon these questions? It is important

that you inform yourself and then in turn your friends and patients on this vital subject.

### **THE BORDEN COMPANY REPLIES TO OUR JUNE EDITORIAL ON THE MILBANK MEMORIAL FUND**

The interesting feature of the letter is that it was written by one L. J. Auerbacher who signs himself Director of Medical Relations. We wonder why a Director for Medical Relations? The outstanding statement in his letter was as follows: "You might be interested to know that the profits made on liquid milk by most of the large distributors in the United States last year were non-existent. This is particularly true of the Borden Company, in which a deficit was shown on their liquid milk sales for the year. We believe the average doctor made more profit out of one call on a patient than most liquid milk distributors made on their entire year's business, which was in the red."

We think Mr. Auerbacher should be informed that he is flattering the medical profession when he intimates that any physician made a profit last year or any of the recent years. As a matter of fact most physicians have borrowed to the limit on their insurance and other tangibles in order to keep their offices open, buy gasoline and other necessary expenses in order to do what they can to relieve the suffering. A physician may refuse to make a call just as a milkman refuses to leave the milk when money is not forthcoming. We believe that if the managers of milk companies would enter the homes in the same intimate way that physicians do they would leave the milk without the pay just as the physicians often give their services with no thought of ever being paid.

There is no thought of criticism of the Borden Company or any of its members. It is expected that they do not have the same opportunity for seeing the sorry side of life and cannot be expected to give of their goods and time in the same way as physicians do. We do believe, however, that every effort should be made to have them see all sides of the problem; likewise we physicians must not be blinded to the medical economics problems like the man in the forest who could not see it for the trees.



## JOHN A. KINGSBURY CARRIES ON

Notwithstanding the fact that Mr. Kingsbury is no longer the Secretary of the Milbank Memorial Fund he declared recently in an address before the Annual Conference of the National Federation of Settlement, Inc. at Montreal, Canada, June 9, that he had no intention of withdrawing from the fight for health insurance. He says there is a very definite distinction between State Medicine and health insurance, and that we shall pool the cost of medical care in this country and continue to receive services from private practice or we may be forced to both pool the costs and furnish medical services with salaried physicians paid by the state. His present plan calls for state-wide compulsory insurance for all persons with an income less than 3000 dollars a year. Insurance costs are to be borne upon the 40-40-20 ratio by the employees, the employer, and the state respectively. He has nothing to say about the proper care for those who have no incomes.

## PAMPHLET ON PHYSICAL THERAPY APPARATUS

In an effort to place physical therapy upon a rational and sound basis the Council on Physical Therapy of the Amer. Med. Assn. has issued a pamphlet containing a list of the accepted apparatuses. This pamphlet may be obtained free by writing to the Secretary, Council on Physical Therapy, A. M. A., 535 North Dearborn St., Chicago, Ill.

## SOCIALIZED MEDICINE IS SUCCESS. SAYS SIR HENRY GAUVAIN

Sir Henry Gauvain, eminent tuberculosis specialist, in an interview in Albuquerque, N. M., had the following to say concerning Socialized Medicine in Great Britain:

"Socialized medicine in England has been a success. Each nation, however, must work out its own problems. The system that fits England may not be adaptable to the United States. The National Health Insurance Society was established in England in 1911. It is supported by contributions from the employer, the employee and a grant from the government. Each individual, however, is allowed to select his own physician. He can receive treatment in his home or go to his doctor's surgery.

"The system has brought a higher standard of living to England. The improvement has been vast in the past 25 years. It starts with pre-natal care and is carried right through the pre-school and school ages. England's health conditions are much better and the death rate has been materially reduced."

THE ALBUQUERQUE TRIBUNE.

Information given us by Dr. G. Mackie confirms the above statements.

## DEDICATION AND OPENING OF THE LEXINGTON NARCOTIC FARM

The first United States Narcotic Farm—at Lexington, Ky.—was formally dedicated and opened by the Surgeon General on the afternoon of May 25, 1935. Admissions were accepted on and after May 29, 1935; 300 addict prisoners from the Federal prison system were to be transferred to the Farm; the Farm will accept cases placed on probation by courts having jurisdiction, one condition of such probation being that the probationers voluntarily submit themselves to confinement and treatment in a narcotic farm; and they accept a limited number of persons voluntarily seeking treatment. By June 30, 1935, there were 280 addicts at the Farm. There are 1000 beds; at present only men can be taken care of; later it is planned that women addicts will be provided for. A second Narcotic Farm is in process of being developed at Fort Worth, Texas. Preliminary plans have been approved and contracts for the necessary buildings will probably be let during the summer. The institution will be a cottage type; custodian features will not be emphasized as in the Lexington institution.

The opening of the institution at Lexington is an expression on the part of the United States Government that their attitude toward the drug addict problem is definitely changed. The government seems to recognize that strict laws regarding commerce of narcotics are not the only measures to be applied to the medico-social problem of drug addiction. Repeated prison sentences have been imposed upon drug addicts more than upon any other type of adult prisoners: this has been the universal way of dealing with them.

The object of the Lexington Farm is to rehabilitate the addict, restore him to health

and train him to be self-supporting and self-reliant. During the treatment he will be under control of the institution as a protection to the community. Shops are being established to afford occupational and vocational training, and education. Experiments are to be carried on to determine the best methods of treatment.

### AMERICAN MEDICAL DIRECTORY

The American Medical Association is now getting material for the 1936 edition of the American Medical Directory. The value of this book rests in its completeness; it's being complete depends upon the physicians themselves to supply data about themselves. Each physician will be given a card on which he is to give the necessary data about himself. He should fill out this card as soon as he receives it; otherwise it may become buried under a stack of medical journals, circulars, etc. Fill out the card at once. If you do not get a card write and ask for one.

### NEWS ITEMS

Dr. A. C. Arbuster of Phoenix, Arizona spent a vacation in Northern California, and enroute home visited the San Diego Exposition.

Dr. George C. Truman, state superintendent of public health of Arizona, spent his vacation at Fort Tuthill near Flagstaff in camp with the Arizona National Guard.

Dr. W. D. Gilmore of Tombstone, Arizona, was married to Miss Esther Schoneberg of Grand Island, Nebraska. Mrs. Gilmore is a former nurse; she spent two years in professional work in Tucson.

Dr. Garland B. Couch of Phoenix, Arizona, who recently underwent a major operation at the Good Samaritan Hospital, is out and around now seeming to be as well as ever.

Dr. Cornelius A. O'Leary who has been living in Phoenix, Arizona for the past two years, will spend the next few years in Tucson in order that his two children may enter the University.

Dr. K. H. Thayer, son of Dr. and Mrs. L. H. Thayer of Phoenix, Arizona, was named by the Maricopa county board of supervisors in July as assistant county physician.

Dr. I. L. Garrison of Phoenix, Arizona, recently resigned as assistant Maricopa county physician. He and Mrs. Garrison are making an extensive trip through the East.

Dr. and Mrs. Charles W. Sult and their daughter are living in the Normandie Hotel in the Wil-

shire district, Los Angeles. Dr. and Miss Sult made a tour of the Pacific Coast. Miss Sult is to be married to Lloyd Daggett on September 17.

Dr. Fred G. Holmes of Phoenix addressed the Kiwanis Club and later the Hiram Club upon the subject of medical history.

Dr. and Mrs. E. A. Gatterdam and son, of Phoenix, Arizona, spent the latter part of July in Los Angeles, California. They also visited the San Diego Exposition on their way home.

Dr. and Mrs. A. E. Cruthirds of Phoenix have recently purchased a beautiful home at 2224 Encanto Drive in Phoenix.

Dr. Alexander M. Tuthill, Major General, will retire from his high position on September 22 because of having reached the age which makes retirement mandatory. He was recently at Fort Sill, Okla., where the 45th division composed of national guard troops of Oklahoma, New Mexico, Colorado, and Arizona were engaged in annual maneuvers.

Dr. Hillary D. Ketcherside, of Phoenix, was in California for his vacation during the month of August.

Mrs. J. W. Morris, wife of Dr. Morris of Safford, Arizona, died August 20. Mrs. Morris was born in South Carolina March 10, 1870. She and Dr. Morris were married in 1895 in Arkansas. They came to Arizona in 1918. Mrs. Morris is survived by her husband, two daughters, and one son.

The Maricopa County Health Unit under the jurisdiction of Dr. A. N. Crain announced that for seven months of this year there was but one case of diphtheria among the school children. In the case reported the parents of the child had refused to have it immunized. The father was a diphtheria carrier and the child contracted the disease from him. About 50 per cent of the county's total school population is now protected against diphtheria. In comparison with the one case developing this year, there were in 1929, the year before the health unit was founded, 161 cases of diphtheria with 22 deaths.

Dr. Trevor G. Brown, President of the Phoenix Little Theater, is putting on a drive to secure members for the oncoming year.

Dr. George E. Goodrich, of Phoenix spent the greater part of July and early part of August at the Coast.

Dr. Robert Flynn, of Phoenix is visiting Europe during the summer.

Dr. Howell Randolph of Phoenix spent his summer vacation in Denver, where he visited hospitals and clinics and reports a profitable summer.

Dr. H. K. Beauchamp, of Phoenix, Arizona, is spending the month of August at the Coast.

Dr. Winn Wiley of Phoenix has been at the Coast for the entire summer.

Dr. Hal Rice of Morenci spent the latter part of August in Phoenix.

Dr. H. P. Mills of Phoenix, Ariz., spent the summer in Santa Barbara, Calif.



## THE INDUSTRIAL RELATIONS COMMITTEE OF THE ARIZONA STATE MEDICAL ASSOCIATION

Upon taking over the office of president, Dr. C. R. K. Swetnam of Prescott, automatically became chairman of this Committee, and made the following appointments: Drs. A. C. Carlson of Jerome, R. D. Kennedy of Globe, Meade Clyne of Tucson and E. Payne Palmer of Phoenix. At the first meeting of the Committee, Dr. D. F. Harbridge was recognized as ex-officio member and Dr. W. Warner Watkins was asked to serve as secretary of the Committee.

During the three months of May, June and July, the following items have been considered by the Committee:

Attention was called to recent development in New York, where an advisory council to be named by the State Medical Association has been recognized by legislative statute; this council is to work with the Industrial Commission of that state in determining the doctors of each county medical society who are competent to handle industrial injuries. The question was raised as to whether our committee could function in any such manner or could help work out any plan which might be applicable in Arizona. The committee was positive that their functions did not extend to any such activity, and no such program is feasible in Arizona.

Case of an infected wound of the ear; question whether daily dressings for a month and bill for same were reasonable. Committee advised that they were.

Case of a hand injury with amputation of finger; man later developed an acute psychosis and died; question of relation between the injury and the psychosis; committee thought they were not related.

Case of a young woman who fell on steps and wrenched her back, and is reported to have adhesions in the pelvis. She has previously had operations for appendicitis and salpingitis; question of the relation between the pelvic adhesions and the fall. Committee gave opinion that the pelvic adhesions were probably not the result of the fall.

Question of compensation for examinations made in a presumed industrial injury; the examinations revealed that the disabilities were not the result of industrial accident. Also question of compensation for examination of an eye condition referred to an ophthalmologist by the workman's employer. These cases opened up much discussion regarding the payment of medical charges for examinations and emergency treatments in cases which later proved to be non-compensable. The commission was asked to bring before the committee all the cases of this kind received during a month's period. This was done, and the following were offered as typical:

A workman on the highway became exhausted from heat; he rested two hours and then finished his shift. The following morning, while still at

home, he suddenly developed a paralytic stroke. The commission ruled that it was not a compensable injury.

A man felt a pain in his groin while lifting a quarter of beef. Surgeon examined him and found a hernia. This does not fulfill the criteria of a traumatic hernia, and since the physician should have known this, the committee approved the rejection of the surgeon's bill for examination.

A man slipped and twisted his back when lifting lettuce crates. There was no employer's report and no authorization for treatment from the employer who denied any knowledge of the injury. The claim for compensation and the doctor's bill were both denied by the commission on the ground that there was no proven industrial injury.

A workman on the highway stepped on a small rock and twisted an ankle. The doctor in this case was asked by the commission to make a detailed report, and payment for this will be made.

Workman trying to roll a large rock noticed a pain in the side, but continued at work; examination later showed a hernia. This was obviously not a traumatic hernia, and surgeon's examination charge was not allowed by the commission.

A laborer working at picking carrots noticed his finger getting sore and swollen. There was no record of an accident and the lesion was not compensable.

Man sprained his back while at work and went to doctor two weeks later. The doctor reported the case but did not think it was due to accident. Compensation was denied but the doctor's bill would be paid.

A miner sprained his back while stooping over in tunnel. There was no accident and the disability was regarded as non-compensable.

Workman was pulling cans out of a brine tank and claimed to have strained the muscles of the abdomen. The doctor made a detailed examination and report for which the commission is glad to pay though ruling that the injury was not compensable.

After discussing these illustrative cases fully, and similar hypothetical cases, the principle was agreed to by the committee and the commission that "in those instances in which the doctor's examination and report is of a character which definitely aids the commission in deciding whether a doubtful case is compensable or non-compensable, the doctor's charge for first examination and report will be paid."

The question of an additional charge for local anesthetic was raised; for example a charge of \$5.00, in addition to the regular surgical fee, for a hernia operation. The committee agreed that if such cases are operated upon in a hospital, it is assumed that the hospital will furnish the anesthetic.

Question was also raised regarding routine examination of tissues. The committee was of the opinion that routine examination of such tissues as will be resected when repairing industrial injuries is not necessary. If hospital rules require

that tissue examinations be routinely made, that practice is for the hospital's benefit and not necessary for the commission's information. The committee advised the commission that special permission should be secured for tissue examinations.

A cowboy riding through brush received a wound on the cheek. Infection and erysipelas developed between five and six weeks later. Question regarding the time interval, whether the infection might reasonably be connected to the injury. Committee agreed that it might.

Case of an injury treated three months after puncture wound of the sole of foot. Chronic infection was then present with bone necrosis. Question whether the lesions reported could reasonably have resulted from the puncture wound. Committee was of the opinion that this was reasonable.

Matter of charge for treating fracture of metatarsal bone. Surgeon charged by the visit, instead of the fixed fee set by the fee schedule. Committee decided that it is more satisfactory and less confusing to make charges according to the schedule.

Question of a workman who sustained a head injury by falling material in 1930, returning to work after 12 days. Four years later the man developed dizzy spells and nervousness, which gradually assumed the characteristics of paralysis agitans. Re-opening of the case on basis of a connection between these symptoms and the old injury was requested. The committee studied all the available information and gave opinion that they could not see the connection between the symptoms now described and the injury four years ago.

The Committee meets regularly on the first Sunday of the month, at the Hotel Westward Ho, in Phoenix, starting the meeting at luncheon at one o'clock. Any member of the State Medical Association will be welcome to present matters of interest to the committee, either by letter or in person.

C. R. K. SWETNAM, Chairman.  
Meade Clyde  
R. D. Kennedy  
A. C. Carlson  
E. Payne Palmer  
D. F. Harbridge, ex-officio  
W. Warner Watkins, Secretary.

## THE REPORT OF ARIZONA'S DELEGATE TO THE AMERICAN MEDICAL ASSOCIATION

(Continued from August issue)

Dr. James S. McLester, President-Elect of the A.M.A., in his opening remarks congratulated the House of Delegates for reaffirming a few months ago its insistence on complete professional independence of the American physician in a world of unrest and uncertainty, and thereby set an inspiring example of clearness of vision and stability of purpose, and by opposing all outside control of medicine, governmental or otherwise, it took an important step toward the maintenance of the present high standards of American Medicine.

In the report of the Judicial Council, two matters were discussed and clarified. The first dealt with membership in the State Associations. After recalling to the members of the House that it was the practice in a few constituent associations to admit to membership physicians non-resident of the state and therefore not members in any com-

ponent society of the state, and physicians resident in the state but for some reason not members of the county medical society where they live or practice, called attention to the by-laws of our Association, which read that membership in a component society should absolutely be essential to membership in state associations. The second matter discussed suggested an improved method of administering the principles of medical ethics. The council felt that there was a widening recognition of the principles and motives behind our professional ethics because of the vast amount of publicity attending the discussion about contract practice, state medicine, and the like. Hence, it becomes more and more a disciplinary responsibility of all component societies for the ethical conduct of their members. Therefore, the Council suggested that it might be necessary for the county societies to extend their prerogative in the exercise of their duty toward thoughtless and indifferent members, and that disciplinary functions resting in the county society should be extended to the state or even national association. This suggestion was made because the Council felt that the present method of procedure of preferring charges of unethical conduct by members of local county societies was very ineffectual because one individual did not desire to place himself on his own initiative in the position of prosecutor. In so doing, it often brought on for himself unfriendliness and antagonism of colleagues, even in that way inviting professional suicide. The council recalled that this problem is similar to law enforcement in local communities, states and the nation. If, in enforcement of the law, the institution of proceedings were left to voluntary action of an individual, personal animus would be the controlling motive, and only minor infractions would be handled. Society has found that it needed a system representing society as a whole, or grand jury investigation and indictment, a public prosecutor, and an impartial court with the right of appeal to higher courts. Medicine in this age needs a similar system for enforcement of its ethical and economics principles. So under this setup, it might be advisable to extend the origination of charges in some situations manifestly too great for the county society to handle to the state association, and possibly, in rare instances, to the national association.

During the course of the proceedings of the House of Delegates, there were many other resolutions presented, and suggestions made by various standing committees. Reference committees studied these matters, some of them were recommended as 'do not pass,' while others were passed on to the Board of Trustees for further study and recommendation.

Dr. E. H. Carry reported to the House that he, with President-elect Dr. J. S. McLester, had conferred with leaders of the American College of Surgeons relative to the stand which the College had taken on the question of sickness insurance, and after this conference, the officials of the College had agreed to the action of the House of Delegates of the A.M.A. taken at its session held in Chicago in February, 1935, and that hereafter, the College of Surgeons was going to let the American Medical Association determine policies on sickness insurance.

The final meeting of the House of Delegates was held Thursday afternoon, June 13th, at which time all officers for the coming year were elected, a new Speaker and vice-speaker of the House were elected, as well as two new members to the Board of Trustees. Kansas City was selected as the next meeting place for the national convention.

Respectfully submitted,

J. D. HAMER, M. D.



## BOOK REVIEWS

### THE COSMIC WAY TO TRUE CIVILIZATION THROUGH PARENTHOOD.

Dr. G. H. Donahue is dead; he left behind a beautifully printed brochure esoteric and euphemistic in character. He tells the world to raise their children with ideals that civilization may improve and wars become a thing of the past. He holds that from their own resources, inherited and self-enhanced, individual human beings must and do build or unbuild their own lives and characters.

In his will he directed that this manuscript be printed and a complimentary copy be sent to hospitals and medical societies—a beautiful thing to have done. May the little booklet yield the influence the doctor had hoped it might.

**SCULPTURE IN THE LIVING**, Rebuilding the Face and Form by Plastic Surgery; by Jacques W. Maliniak, M.D., Formerly Major, Reconstructive Hospitals, Allied Armies, etc.; with a Foreword by Wendell C. Phillips, M.D., Former President, American Medical Association; The Lancet Press, 80 Lafayette Street, New York; 1934; Price \$3.00.

The author regards deformed individuals with great pity and believes that it is a noble work to remove scars and abnormalities in order to develop a more normal state of mind for them toward life in general. It is certain that many persons with correctable defects grow morbid and depressed grieving over their lots. The subjects of several of the chapters are: Repairing skin, reconstruction of the nose, rebuilding the lips and chin, breast repair, deformities about the eyes, the malformed ear, the aging face and form, facial asymmetries, bone carpentry. The book is well illustrated. It seems to have been designed to display what can be done in cosmetic surgery rather than to present methods of doing it.

**NATURE'S WAY**; The Fertile and Sterile Periods of Marriage; by Victor C. Pedersen, A.M., M.D., F.A.C.S., Author of "The Woman a Man Marries" and "The Man a Woman Marries;" G. P. Putnam's Sons, New York; 1934; \$1.00.

There has been considerable interest recently, probably more than usual, in birth control. There are those who believe that any mechanical interference with nature to be wrong but are willing to take advantage of nature's provisions. This little book of 81 pages gives the facts as to the fertile and sterile periods of women. It is said to be endorsed by physicians, clergy and layity. The knowledge of the contents of this book would certainly relieve thousands of married couples of anxiety and of physical as well as mental distress. The author dedicates the book "to those men and women who regard parentage as the noblest purpose of life."

**SURGICAL PATHOLOGY OF THE PERITONEUM**; by Arthur E. Hertzler, M.D., Surgeon to the Agnes Hertzler Memorial Hospital, Halstead, Kansas, Professor of Surgery, University of Kansas; 201 Illustrations; J. B. Lippincott Company; Philadelphia, Montreal and London.

The name of Hertzler stands so high in research upon surgical conditions that it is only necessary to state the name of the book and its author and the reader almost invariably will know that the book is an outstanding piece of work. In this book Hertzler has devoted himself to the study of inflammation of the peritoneum. He thinks that a great many conditions thought to be abnormal are in reality not abnormal; what had been regarded as adhesions are really not adhesions.

The printing and the illustrations are superb. The book is especially recommended to surgeons.

**METHODS OF TREATMENT** by Logan Clendenning, M.D., Professor of Clinical Medicine, Lecturer on Therapeutics, Medical Dept. of the University of Kansas; Attending Physician, Kansas City General Hospital; Physician to St. Luke's Hospital, Kansas City, Mo.

This book gives a thorough outline of the approved methods in general practice. Further than of drugs it takes up rest, diet, gymnastics, bacterial therapy, glandular therapy, dietetics, hydro-therapy, and other miscellaneous procedures.

This book is valuable not only to the general practitioner but to the student and specialist as well.

E. A. G.

**A TEXTBOOK OF CLINICAL NEUROLOGY** (with an Introduction to the History of Neurology). By Israel S. Wechsler, M.D.; Third Edition revised. Philadelphia and London, W. B. Saunders and Company, 1935.

The new edition of this popular book on Neurology seems to measure up to the standard of the former editions in every way. Practically every page has been revised in one way or another; many of the parts have been entirely rewritten. One new chapter—on History of Clinical Neurology—has been added. Any physician who has made use of the former editions of this book knows how practical it is and how terse and clear is the text. The publishers have selected an extra good grade of paper making the book unusually small, and the type is easy to read, so that all in all this is a most practical book for the physician.

**THE DOCTOR'S BILL**—by Hugh Cabot. Introduction by A. Lawrence Lowell. New York: Morningside Heights, Columbia University Press. Price \$3.00.

If I read Cabot correctly he says there is a better grade of medical services available to the American public than the public is at present obtaining—in most instances. The economic problem permeates here and there and everywhere and more than anything else prevents good service. The title of the book "The Doctor's Bill" may be taken literally to mean that little scrap of paper so often destroyed, in anger, and accompanied with the words "the damned robber" or some other such phrase, and hence be emblematic of the economic question. Or the title may be construed in a quasi-legal sense to mean the bill of particulars in the case now in the court of Public Opinion entitled "The People vs. The Care of Their Health."

Cabot says that physicians should be grouped together so that whatever expert services a sick man needs may be given by one specially trained in the illness and at an average fee irrespective of the financial rating of the patient. In the smaller communities the groups will perhaps not have the same high attainments of perfection in rendering service as those in the populous districts may have due to the fact simply that those seeing large numbers of a certain ailment naturally become more experienced. The difference between the two groups, however, will not make much difference, except in the rare case. The matter of working in groups is largely an adjustment of tempera-

ments and a full realization that only by so doing can the highest type of service be consistently rendered.

Having physicians in groups promotes specialization among them and permits two or more needed specialists to work upon a case. The charges will be less than would be if separate consultants had to be called.

Unless the group idea prevails, with an adjustment of incomes without considering work done, the physician whose specialty is internal medicine may be impelled to take care of a case of obstetrics or to remove an appendix because the one hundred or the two hundred dollar fee or both are needed to pay the accrued bills of the past months. Or the surgeon not having collected some of the hundred-dollar fees he has charged feels compelled to treat a case or cases of pneumonia or rheumatism. It goes without saying that these cases vicariously treated may have just as excellent care as though they had been treated by the men especially trained in the treatment of the respective diseases in question. On the other hand we know that every now and then the results in a case treated by the proper expert rather than by the improper expert may be as far separated as are life and death.

Cabot is unequivocally opposed to the sliding scale of charges as now more or less generally practiced by physicians. Quoting, "the custom has tended to act like a burr under the saddle of public opinion." To make up for the few large fees which physicians now get he would have the indigent and semi-indigent have medical attention at the expense of the state. The low income group he would have banded in some sort of an insurance scheme so that they would have the advantage of mutualization of costs not only for medical attention but for hospitalization.

The plans for the coming changes—they are coming, if not almost here, he says—should be made by far-seeing physicians but the execution of the changes or at least the purely economical features should be placed in the hands of those trained in economics. Quoting, "It does not seem to me probable that the public will be prepared to turn over to the medical profession, which, as far as I know, has made no outstanding reputation in the field of finance, the management of the enormous sums which will be involved here."

He would have us realize that the great need at the present time is for thorough organization within the medical profession in order to deal with representatives of the public in an efficient manner; capable members of the profession in a position to devote time and attention to social and economic problems should be selected to represent the profession in discussions with the public.

While physicians more or less generally may disagree with many of the pronouncements and conclusions of the book, it must be remembered that the book is written from as nearly a disinterested standpoint as any physician can have by a

physician of no mean attainments. There is plenty of evidence in the book that the author has devoted long hours to the problems of The Health of the People and the economic phases connected therewith. All physicians should read the book.

The Liverpool Medico-Chirurgical Journal: HUGH OWEN THOMAS Centenary Number; printed in Great Britain by Samuel Hill and Sons (L'Pool) Ltd., College Lane, Liverpool, price half-a-crown; J. Murry Bligh, M.D., F.R.C.P. editor.

HUGH OWEN THOMAS of Thomas-Splint fame was wont to say, "I hope I shall not be remembered only as an inventor of splints, for any mechanical fool can do that; the idea to which they give effect is the important point."

I think there is no question but what those who fully understand the Thomas splints also fully understand that Thomas must have had correct physiological principles.

Two brothers were cast upon the shores of Scotland by the waves after a shipwreck. The younger was taken into a farmer's home and reared. His son became Evan Thomas.

At an early age Evan showed unusual ability in healing the ailments and injuries of animals on the farm and soon had an enviable reputation as an animal doctor. The suffering human population then sought his aid and he gained an enviable reputation as a physician, especially as a bone-setter. His recognition that he lacked in not having had an education caused him to have his five sons educated as physicians.

Hugh Owen and John Lewis became widely known as orthopedist and gynecologist, respectively.

The subject of this sketch, Hugh Owen, was educated at Edinburgh and had the good fortune to come in contact with Lister, Symes, Spencer, Simpson and Goodsir. After two years in Edinburgh he went to the University College at London and in 1857 gained membership through examination in the Royal College of Surgeons. He spent a time in Paris after which he returned and entered practice with his father. They soon had a disagreement and he set up in 1859 for himself. He rapidly gained a reputation for work as a bone-setter and had to enlarge his offices and add a work-shop. Before long the streets accommodated the overflow from his offices. He seemed to have an uncanny sense in recognizing the needs of the sore and inflamed joints. He made many of his own splints or supervised their making with the specific purpose of giving joints the needed rest. For dressings he used sawdust bearing bichloride of mercury and phenol.

In 1864 he married Elizabeth, the second daughter of Robert Jones, the grandfather of Sir Robert Jones. The marriage proved completely happy.

Thomas was unorthodox in religion as well as in surgery. He was extremely kind but gruff on the exterior. He made no parade of his charities. He was not a specialist as specialists are known today. Dr. John Ridlon of Chicago described him as follows: "A little man in a clergyman's coat, a smoke-room steward's cap, thick-lensed spectacles and a brindle beard . . ." His pictures invariably show him with a cigarette in his mouth.

Thomas used the principle of Bier's hypenemia at least two years before Bier was qualified as a physician. He wrote numerous articles, not only on fractures and splints, but upon such subjects as intestinal diseases and obstructions. "Principles of the Treatment of Diseased Joints" is probably his outstanding work, although in 1887 to 1890 he published the *Upper Extremities* and *Fractures, Dislocations and Deformities of the Lower Extremities*.

In 1891 on a return from visiting a patient at Runcorn, a long wait in a cold station, and travel-



ing in a non-heated day-coach caused him to develop a cold and pneumonia which led to his death.

We have been asked to review this number of the Liverpool Medico-Chirurgical Journal for the purpose of calling attention to the plan of the Liverpool Medical Institution to commemorate the work of Hugh Owen Thomas by developing a library on orthopedic surgery. It is the desire that those who read this review and who have done work in orthopedic surgery will send their reprints and books to this Institution.

Medicine in the Middle Ages: DAVID RIESMAN, M. D., Sc. D., Professor of the History of Medicine and Professor Emeritus of Clinical Medicine, University of Pennsylvania, Member, History of Science Society and Medieval Academy of America; Paul B. Hoeber, Inc., New York, \$5.00.

One thinks of the Dark Ages as being truly dark, the light of knowledge being completely extinguished. On sober thought, however, one must realize that such could not have been. There must have been those who kept up an interest in learning.

There is a great deal of interest in this book to a medical historian. There are 35 chapters. Among the titles one finds the following: "The Greek Inheritance, Monastic and Clerical Medicine, The School of Salerno, Arabian Medicine, The Jewish Physicians of the Middle Ages, Alchemy, The Rise of the Universities, Anatomy, Vesalius, Surgery, Surgeons and Barbers in Paris, Baths and Medieval Hygiene and Sanitation, Medicine and the Guilds, Medieval Diseases and Epidemics, Leprosy, The Plague, The Flagellants and the Dancing Mania, Syphilis, Paracelsus and The Lay Attitude toward the Medical Profession in the Middle Ages." There are 79 illustrations, many of them rarely seen in other publications.

While I have frequently read of Pope John XXI, who was a physician, I have never come across as good an account of him as is found in "Medicine in the Middle Ages." Petrus Hispanus was born in the second decade of the 13th Century in Portugal which was then more or less intimately connected with Spain. He studied in Paris under Albertus Magnus and in England under Wm. Shyreswood, the great logician. His medical training was received at Paris and Montpellier. He was a man of great versatility. He wrote a book on logic which became extremely popular, going through 48 editions after the invention of printing. His two medical works are: "Thesaurus paperum," a collection of recipes for every known disease, and "Liber de oculo." Both books were standard for several centuries. He was appointed body physician to Pope Gregory X, and thus entered upon an ecclesiastical career. In 1275 he was chosen Pope succeeding Adrian V. He took the name of John XXI, although there had been but 19 Johns in the papal chair before him. Petrus Hispanus was a believer in astrology and yet he was more rational regarding his medical conceptions than were most of his contemporaries. He endeavored to be uninfluenced by superstition.

He occupied the papal throne but eight months, being killed by the falling of a ceiling in his palace.

A number of interesting and strong paragraphs are devoted to the development of the term "Doctor" and the conferring of the Doctorate. The formality of the conferring of the different degrees is described.

To say that the book is by Hoeber proves that it is a work of merit and of art. Unfortunately there are a few typographical errors. In the table of contents, in the title of the 34th Chapter, the word "toward" has an "s" where there should be an "r"; and in the word "hospital" the "s" which should be on the end making it a plural word, is

before the "a". There are relatively few errors in the text, however.

To one who is interested in medical history, this book is especially recommended.

EMOTIONS AND BODILY CHANGES: A Survey of Literature on Psychosomatic Interrelationships—1910 to 1933; by H. Flanders Dunbar, M. D., Ph. D., Departments of Medicine and Psychiatry, Columbia University; Published for the Josiah Macy Jr. Foundation by Columbia University Press; New York; 1935.

Psychology is psychology; ;but it also is physiology. Physiology depends upon structure-anatomy—and upon pathology. Therefore, in attempting to arrive at psychosomatic relationships it would seem that perhaps relatively few generalizations may be made and that in the main the problem is individual. As pointed out in the book in the paragraphs dealing with curing of warts by psychotherapy much depends also upon the physician in charge of the case as well as upon the patient and his disease. One man had warts, for example, and he was treated in the clinic by the clinic physicians through suggestion without benefit. He was promptly cured by suggestion when treated by Block in his private office. The mere fact, however, that warts are cured by psychotherapy does not argue for their psychogenesis. The curability of a certain per cent of warts through psychotherapy and the failure of the cure in other cases would seem to suggest inadequate knowledge in our understanding of the physiology and pathology, of warts and, of the human anatomy. So it would seem to be with other problems of medicine. The problem lies in interpreting the psychic as hingeing upon a system of organs—the whole individual—with all intrinsic and extrinsic influences in their proper interrelationships.

The author admits in his chapter entitled "Conclusions" that the time is not ripe for a textbook on psychosomatic interrelationships and that it may never be. He says further that the material included in his book belongs in the texts on medicine and not in a special book such as this. The book, however, is interesting reading.

## PROCEEDINGS OF THE NEW MEXICO MEDICAL SOCIETY

### 53rd Annual Meeting

Albuquerque, N.M., May 23-25, 1935.

(All business and scientific sessions were held in the Indian Room of the Franciscan Hotel.)

Meeting of the Council was called to order by Vice-President, Dr. George W. Jones (Clovis), at 8:30 a.m.; there were present: Ex-officio members Drs. G. W. Jones and L. B. Cohenour; members Drs. R. O. Brown (Santa Fe), R. L. Bradley (Roswell), C. B. Elliott (Raton), C. A. Miller (Las Cruces), and Carl Mulky (Albuquerque).

Financial report of the Secretary-Treasurer, Dr. L. B. Cohenour (Albuquerque) was read by him as follows:

Balance on hand at annual report	
July 19, 1934 .....	\$1,476.74
Delinquent dues collected from 10 members .....	50.00
Dues from 11 new members.....	55.00
Total cash received to May 23, 1935.....	2,591.74
DISBURSEMENTS	
Chas. F. Beeson, Refund for Doctors Smith and Lander .....	10.00



Southwestern Medicine for 205 members....	410.00
Reporter, 1934 meeting, balance of one-half fee .....	87.50
Treasurer's Bond for 1934-35 .....	5.00
Reporter for 1935 meeting, advance one-half fee .....	87.50
Secretary's salary for 1934-35 .....	300.00
Baser Printing Company, 550 two-cent stamped envelopes and 250 letterheads..	23.50
Remington Rand, Inc. (Ribbon) .....	.75
Baser Printing Company, 500 membership cards .....	3.50
Albuquerque National Bank, Federal Tax from July 19, 1934, to January 1, 1935....	.40
Western Union, Re: Naturopathic Bill .....	11.26
Robert O. Brown, Phone calls for Legislature .....	3.30
Gilbert & Hamilton, Attorneys, Legislature .....	75.00
American Medical Association, Directory....	12.00
Western Union, Telegram to A.M.A. ....	1.01
Baser Printing Co., 50 letterheads .....	2.50
<b>TOTAL .....</b>	<b>\$1,033.22</b>
<b>BALANCE .....</b>	<b>\$1,558.52</b>

#### OUTSTANDING INDEBTEDNESS

Southwestern Medicine for 206 members..	412.00
Secretary's Salary for 1935-36 .....	300.00
Reporter for 1935 meeting (balance in full) ..	87.50
Treasurer's Bond for 1935-1936 .....	5.00
Approximate total indebtedness .....	804.50
Expected balance after all bills are paid....	754.02

The Secretary-Treasurer's report was approved and accepted as read.

Applications for membership in the Society were presented by the Secretary, Dr. L. B. Cohenour (Albuquerque). (See S.W. Med. July, 1935, p. 255.)

Immediately following adjournment of the Council meeting, the House of Delegates assembled and when called to order by Dr. George W. Jones (Clovis), acting President, at 9:20 a.m., there were present: Officers, Dr. G. W. Jones, Vice President, acting chairman, and Dr. L. B. Cohenour, Secretary-Treasurer; delegates, Dr. R. O. Brown (Santa Fe), Drs. H. A. Ingalls and R. L. Bradley (Roswell), Dr. C. B. Elliott (Raton), Dr. G. T. Colvard (Deming), Dr. C. H. Gellentien (Valmora), Dr. J. W. Stofer (Gallup), and Drs. Carl Mulky, M. D. Warden, W. R. Lovelace, H. W. Goelitz and C. C. Meachem (Albuquerque).

Dr. Jones introduced Miss Maud von B. Kemp, State Director of the Social Service, F.E.R.A. Miss Kemp stated: At present about 33,000 families are on relief rolls in the State; while it is believed this number will be materially reduced in the near future, there will remain many to be cared for; a better method of handling medical relief than that in vogue at present is desirable. Conferences have been held with Dr. Earp, Director of the State Bureau of Health and others concerning problems that have arisen in this connection, and it was decided to ask the medical group to appoint a Public Relations Committee to handle the medical relief in its own way.

There has never been a percentage of relief money set aside for medical purposes and the amount so spent has been handled as direct relief. If a definite appropriation might be agreed upon for medical purposes, that amount could be taken from the allotment and turned over to the responsible group of medical men and the expenditures could be handled by that group in conjunction with the State Board of Public Health and New Mexico Relief Authority. If it is found that more funds are needed, we might be able to undertake to provide them. That would place the control and responsibility of medical relief in the hands of the medical group. We realize the State Board of Health has not the money and it is not their job to take care of this class of patients.

Dr. R. L. Bradley (Roswell) stated: His County Society had experienced a great deal of trouble over relief work; non-medical groups should not have the right to dispense medical relief regardless of the medical profession. Many receive orders for medical treatment who are able to pay. He was called to see a little girl and when he started to leave the mother asked if she should get an order for the call from the Relief or would he do so. He found her living in a nice five or six-room house, a modern home with telephone, and happened to know that she owned the place next door. The Relief Committee phoned him about the case and he told them he would not take it as a relief case as he knew these people were able to pay a doctor's bill.

Dr. Carl Mulky stated that the Special Committee met with the F.E.R.A. Administration in Santa Fe, on August 31, 1934, and reported:

"A meeting of the special committee authorized by the House of Delegates of the New Mexico Medical Society July 20, 1934, at the Las Vegas Session to confer with the New Mexico Relief Administration relative to changes in the regulations covering medical care to beneficiaries of the F. E. R. A., was held in Santa Fe, New Mexico, Friday, August 31, 1934.

Members of the Committee present were: Dr. W. H. Livingston, Santa Fe, Chairman; Dr. R. L. Bradley, Roswell, and Dr. Carl Mulky, Albuquerque.

The meeting was called to order by the Chairman, Dr. Livingston, at 10:30 a.m. in the State Capitol Building. The Chairman asked Dr. Mulky to report the portion of the proceedings and discussion in the House of Delegates that resulted in the appointment of this Committee.

Dr. Bradley then discussed the regulations governing medical aid, as applied in Chaves County. He said that the schedule of medical fees in the present contract pertaining to office calls, city calls, county calls and obstetrical work was much less than 50 per cent of the usual medical fees charged by the regular physicians of Roswell, and the amounts allowed in many instances were not sufficient to cover the cost of rendering the service. He said that the physicians of Roswell were dissatisfied with this part of the contract between the New Mexico Medical Society and the New Mexico Relief Administration and asked if this schedule could be revised upwards. He stated that in order to relieve themselves somewhat of what they considered a burdensome contract, a group of six Roswell physicians had agreed to divide the F.E.R.A. work, three physicians taking all orders for two weeks and the other three the following two weeks. He said this was only a temporary arrangement and he did not think these physicians would be willing to continue on the present fee schedule.

Dr. Brown explained that the portion of the fee schedule in question was a part of the contract between the New Mexico Medical Society and the New Mexico Relief Administration and had been approved by the F. E. R. A. Administration in Washington and could not be altered without authorization from Washington. Other special medical services not covered by this schedule are paid for according to a special fee schedule agreed upon by a committee of the New Mexico Medical Society and the New Mexico Relief Administration. This schedule is more elastic and the fee allowed depends on the nature of the case treated. This schedule is on file in the office of the New Mexico Relief Administration.

Dr. Bradley, continuing, said that the inability of F.E.R.A. beneficiaries to secure hospitalization when needed worked a hardship on the physicians and tended to result in inefficient medical care for the patient. He said some arrangement should be made whereby patients on the relief list could have proper hospital and medical service.



Dr. Brown replied that the F.E.R.A. Administration did not pay for hospitalization of patients. He said there had been much correspondence with the F.E.R.A. officials on this subject, but that they had been unable to get a change in this ruling. He stated that they, the F.E.R.A., hold the opinion that hospitalization of indigents was an obligation of local communities and did not come within the scope of the relief program. He said that New Mexico was one of the few states in the Union, if not the only one, that had made no state appropriation for this purpose, and that any arrangement for hospital treatment of indigents would have to be made with the local county or city commissioners and the expense borne by local charity funds.

Dr. Bradley further stated that he wanted a clearer understanding of the meaning of the term "indigent" as applied to persons on Federal Relief lists. He said that he had been issued orders for medical service to patients who owned considerable property free from incumbrance and who, in his opinion, were not entitled to Federal aid as indigents. He felt that there was a lack of proper investigation of such cases and that by the issuance of medical orders to such persons the physician was deprived of his legitimate regular fee which the patient in time probably could pay.

Miss Reeves replied that the term "indigent" as applied to beneficiaries of the F.E.R.A. did not necessarily mean that they were actually destitute, but meant that there was demonstrated need of financial or other assistance. She explained that many persons who owned real estate or personal property were unable to raise money and it was the purpose of the F.E.R.A. to give them such assistance as would enable them to retain their property and become rehabilitated in the course of time. She said that the organization of the New Mexico Relief Administration was far from complete at this time and that there still is a lack of trained investigators and that mistakes would undoubtedly occur at times, which would be corrected by future investigations. There was considerable discussion of this subject by different representatives of the New Mexico Relief Administration and members of the Committee, and was emphasized that the regular family physician could probably supply more accurate information as to the actual needs of a family for relief than could any other person, and close cooperation between the local relief administration boards and the physician was urged.

It was further brought out in the discussion that local administration boards frequently did not clearly understand the "traditional family-physician relationship" as emphasized in the contract between the F.E.R.A. and the Medical Association, and that friction and dissatisfaction often arose because local boards failed to recognize this point. Instances were noted where local boards ordered a type of medical service for F.E.R.A. beneficiaries when another type of special service was required, instead of leaving it to the judgment of the physician to determine and furnish the character and amount of medical service needed, as specified in paragraph one of the contract now in force.

A motion was made and carried by the Committee that Miss Reeves be requested to write to the F.E.R.A. in Washington and ask if any changes might be made in the existing contract between the New Mexico Medical Association and the New Mexico Relief Administration. She was also requested to emphasize the fact that there are no charity hospitals in New Mexico and no provision available for hospitalizing indigent cases and ask if the present F.E.R.A. ruling on that question can be changed. Miss Reeves agreed to do this at once.

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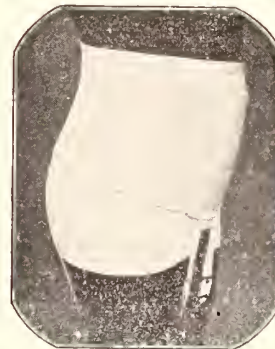
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There being no further business, the Committee adjourned.

W. H. LIVINGSTON, M. D.,  
Chairman."

After reading the foregoing Committee report, Dr. Carl Mulky (Albuquerque) continued, stating "That was the only meeting we had."

Miss Kemp arose and stated that she had forgotten to mention that one of their big problems is the care of tuberculous patients who are without finances. We are paying for their board and care, \$10 to \$35 per month, with no control over the sanitary conditions under which they are living. Many of them are chronics. We have constant demands for medical care for chronics but are not supposed to take care of this type, as they are supposed to be left to the care of the State.

Motion was made that the Committee appointed last year, of which three members are in attendance at this meeting, be instructed to go to Santa Fe, interview the Relief Administration, find out their authority for fixing fees and other matters pertaining to medical relief, and report back to the House of Delegates before the adjournment of this Session. Motion seconded by Dr. H. A. Ingalls (Roswell), and carried.

Dr. W. R. Lovelace (Albuquerque) suggested that the State Administrator, Mr. Frank, be asked to give the Society an hour or so of his time, and made motion that the Secretary phone Mr. Frank and ask him to come to Albuquerque for conference with the Council or House of Delegates, and insist upon his attendance. Motion seconded and carried. Adjournment 10:00 a. m.

#### SCIENTIFIC SESSION

The scientific session was called to order at 10:00 a. m. by Vice-President Dr. George W. Jones (Clovis), who announced that on account of the untimely death of Dr. C. F. Milligan, President, it became his duty and privilege to take over the office of President of the Society.

Following Invocation by Rev. G. M. Weber, Albuquerque, the Honorable Charles Lembke, Mayor of Albuquerque, in an address of welcome, assured the assembly that "It is a privilege and pleasure to have your organization meet in this city. It seems to me that this is the first meeting I have attended in the last couple of months without discussing ways and means of getting money out of the Government in large appropriations for one thing or another. Perhaps it is very possible for this Association to establish some project for research in medicine that might be started in which we might get a few millions to be spent over a period of years. However, we are very happy to have you here and hope in the arrangement of your pro-

gram that all of your time will not be taken up with the serious side but that you may have opportunity to visit around and see the city. Our previous Mayor always said when addressing conventions, 'If by chance you run amuck with our ordinances and find your car tagged for overparking, etc., I will take care of it—just call 518'—but he made it a point never to be there. He would also go further and assure visitors that if placed in jail, he would go there and stay with them. He was a pretty good gambler and did not often lose, but Gentlemen! I am not going that far, but I do assure you that you are indeed welcome, that we are happy to have you here, and we hope you will find it possible to get around, see the city, and enjoy your stay in our midst."

Dr. H. E. Rodgers, President of the Bernalillo County Medical Society, also extended cordial greetings, stating that "The Bernalillo County Medical Society has sponsored, formulated and prepared a program which I believe will meet with your approval. We are indeed honored by having with us in addition to our local talent several outstanding speakers and men outstanding in their different fields of medicine. Some of these men have traveled long distances and are prepared to speak to you about their various subjects. I can assure you they know whereof they speak and I want you to attend the meetings, be attentive and assimilative, as they will be of value to you. In conclusion I may say it is my wish that in the not distant future, we will have the pleasure of welcoming you to Albuquerque again."

On behalf of the Society, Dr. C. H. Gallenthien, Valmore, expressed thanks for the very cordial welcome accorded. "Albuquerque," Dr. Gallenthien said, "to all New Mexicans is characterized by its hospitality and good-fellowship. We have had many excellent meetings here and have probably imposed upon Albuquerque and its citizens, but I can assure you that the members of the New Mexico Medical Society consider it a privilege to be here and we will do all in our power to make our stay here as pleasant and comfortable for our hosts as we possibly can."

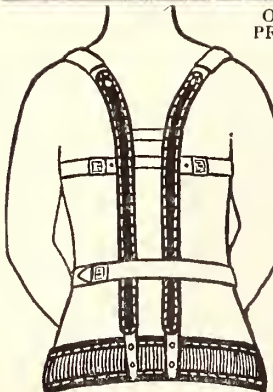
Dr. Jones, Chairman, suggested this as a fitting time to have a few remarks in commemoration of our deceased President, Dr. C. F. Milligan.

Dr. H. A. Miller (Clovis) in response stated: "As you all know, Dr. Milligan died a few months ago from encephalitis. He was one of our best doctors and surgeons at Clayton—a man with a very high sense of honor and a keen sense of duty. He represented the departing type of the beloved old family physician. Leaning rather towards pediatrics, he was a force not only in medicine in his com-

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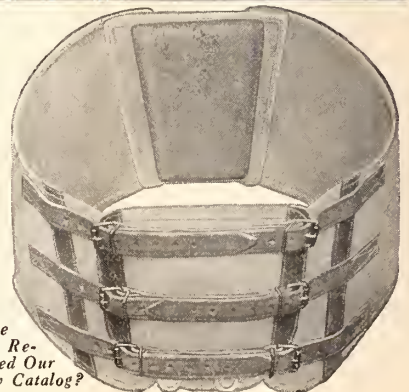
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munity, but also in the affairs of the town. I do not know that it is necessary for me in my feeble way to attempt to eulogize Dr. Milligan, as his life's history speaks for itself."

Dr. Jones, Chairman, arising, announced, "It is my pleasure and honor to turn the Chair over to our new President, Dr. C. W. Gerber, Las Cruces, N. M."

Dr. Gerber in reply stated: "It is indeed a great honor to be selected as the head of the medical profession of the State of New Mexico—the highest honor that can be accorded any man by his colleagues. Besides being an honor, it is a great responsibility, and at this particular time I think it is more so than at any time in the history of medicine, as the medical profession has never before been confronted with the situation that is confronting it now. I admire your confidence in having selected me, but I must say that I cannot do anything alone and need the help of every member of the Association. However, I am perfectly willing, if you are, to take off my coat and go to work. I thank you." (For Presidential address see Southwestern Medicine July, 1935, p. 223.)

Malarial Control, the subject of an interesting lecture by Colonel Adams, Sanitary Engineer for the New Mexico State Bureau of Public Health, (pinch-hitting for Dr. J. R. Earp, New Mexico State Health Officer, Santa Fe, who was unable to be present), was graphically illustrated by three reels of motion pictures, showing work which has been done in Dona Ana county during the past few months by the State Bureau of Public Health, with cooperation of the United States Public Health Service and the F.E.R.A., Dr. C. W. Gerber, county health officer of Dona Ana County, being in charge of the work. In five months 49 swamps with 719 acres and 32 ponds with 97 acres have been drain-

ed, and with these breeding grounds eliminated, treatment of permanent and necessary drainage ditches has been instituted. The 250 miles of drainage ditches in Dona Ana County, which are treated every two weeks during the breeding season, constitute the largest malarial control project in the United States and the second largest in the world.

"Ovulation—Sterile and Fertile Periods," the title of a paper and a film in illustration, presented by Dr. Cyrus W. Anderson, Denver, Colo., "were not to be construed," said Dr. Anderson, as being in advocacy of birth control, but rather an attempt to convey a knowledge of ovulation, sterile periods and fertile periods, and the physiology of fertilization."

Mrs. Margaret Sanger, of New York, was asked to say a few words and told of work being done by the New York Research Bureau for Birth Control. She urged cooperation of the Society in the adoption of a Resolution requesting the House of Delegates of the American Medical Association to initiate a comprehensive program with respect to the study of birth control, instructing its appropriate agencies to undertake the necessary scientific study. Adjournment for luncheon.

#### AFTERNOON SESSION, MAY 23, 1935

The opening paper of the afternoon session, "Some Eye Problems of the General Practitioner," by Dr. Martin Green, San Francisco, Cal. (See SW. Med. July, 1935, p. 236.)

Dr. S. L. Haas, San Francisco, Cal., read a paper on "The Treatment of Deformities of Anterior Poliomyelitis." He described some of the operations with motion picture films.

Dr. Robert C. Packard, Denver, Colo., read a paper on "Treatment of Fractures of the Shaft of the Femur in Children and Adults." He showed slides



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The next paper was by Dr. S. R. King, U. S. Public Health Service, Fort Stanton, N. M., on "Avulsion of the Tibial Tubercle."

Discussion of the papers presented during the day was opened by Dr. F. C. Goodwin, El Paso, Texas, and participated in by Drs. R. G. Packard, Denver, Colo., Dr. S. L. Haas, San Francisco, Cal., and Dr. S. R. King, Fort Stanton, N. M.

Adjournment until 9 a. m., May 24, 1935.

Entertainment for members of the Society and visiting physicians was provided in the evening in the form of a Smoker at the Elks' Club. This was well attended and thoroughly enjoyed by those present.

## SECOND DAY, MAY 24, 1935

The scientific session opened with an orthopedic clinic conducted by Dr. S. L. Haas, San Francisco, Cal. There was presented a case of general dislocation of the hip in a girl of about seven years of age when first brought to the hospital. Treatment was by closed reduction. "In cases of seven years of age and older", Dr. Haas remarked, "prognosis for good results is not good, for as they grow older reduction is much harder and results become progressively poorer." Other interesting cases were shown and treatment explained, with results noted.

The first paper of the morning was presented by Dr. H. C. Naftziger, San Francisco, Cal., on "Surgery of Hypertensive States."

Dr. H. C. Bumpus, Jr., Pasadena, Cal., then spoke on "Present Methods for Relieving Prostatic Obstructions."

Dr. Albert Soiland, Los Angeles, Cal., read a paper on "Radiation Therapy in Various Surface Lesions."

Dr. G. T. Vinyard, Amarillo, Texas, discussed the subject of "Inflammatory Conditions of the Female Pelvis."

## House of Delegates

Meeting of the House of Delegates was called to order at 1 p. m. by the President, Dr. C. W. Gerber (Las Cruces).

Minutes of the meeting of the House of Delegates held May 23rd were read by the Secretary, Dr. L. B. Cohenour, who stated that in accordance with the motion adopted he had called Mr. Frank, State Relief Administrator, on the telephone and had been informed that it was absolutely impossible for Mr. Frank to come to Albuquerque at this time and that Miss Kemp had been authorized by him to act in his behalf.

Motion by Dr. C. A. Miller (Las Cruces), seconded by Dr. W. R. Lovelace (Albuquerque), that the minutes be approved, was carried after slight correction had been made.

## ELECTION OF OFFICERS

After reading of the By-Laws by the President to refresh the minds of those present as to the proper procedure, Drs. Carl Mulky (Albuquerque) and C. A. Miller (Las Cruces) were designated to act as tellers, and nominations were requested for the office of

### President-Elect

Nomination of Dr. M. B. Culpepper (Carlsbad) was offered by Dr. H. T. Miller (Clovis) and seconded by Dr. H. A. Ingalls (Roswell). Elected.

### Vice President:

Nomination of Dr. W. A. Gekler (Albuquerque) was offered by Dr. H. A. Ingalls (Roswell).

Nomination of Dr. George W. Jones (Clovis), present Vice-President, was made by Dr. L. B. Cohenour (Albuquerque).

Motion was made and seconded that nominations be closed and ballot taken. Motion was carried,

the ballot resulting in election of Dr. George W. Jones (Clovis) as Vice-President.

### Office of Secretary-Treasurer:

Nomination of the present Secretary-Treasurer, Dr. L. B. Cohenour (Albuquerque) was made by Dr. C. A. Miller (Las Cruces) and seconded by Dr. Carl Mulky (Albuquerque). Elected.

### Members of Council for Three Years:

Motion by Dr. Carl Mulky (Albuquerque) that the retiring members, Dr. C. B. Elliott (Raton) and Dr. R. O. Brown (Santa Fe) be re-elected for three years, was seconded by Dr. C. A. Miller (Las Cruces) and carried.

### DELEGATE TO AMERICAN MEDICAL ASSN.

Nomination of Dr. H. A. Miller (Clovis) was made by Dr. R. L. Butler (Clovis), seconded by Dr. C. A. Miller (Las Cruces). Elected.

(To be concluded in October issue.)

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VOL. XIX.

OCTOBER, 1935

No. 10

OFFICIAL ORGAN  
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PUBLISHED MONTHLY

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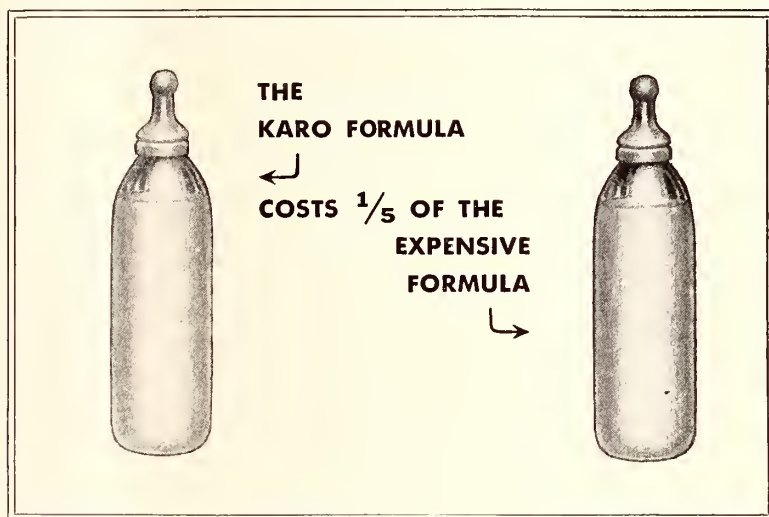
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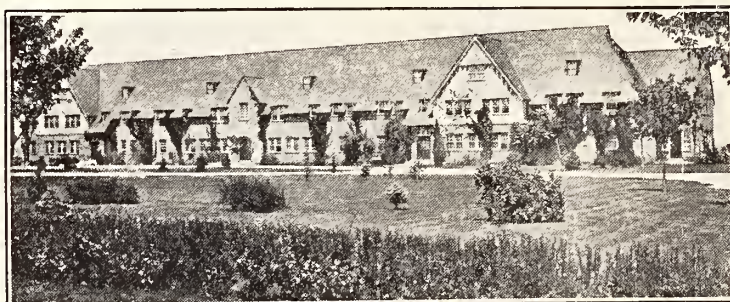


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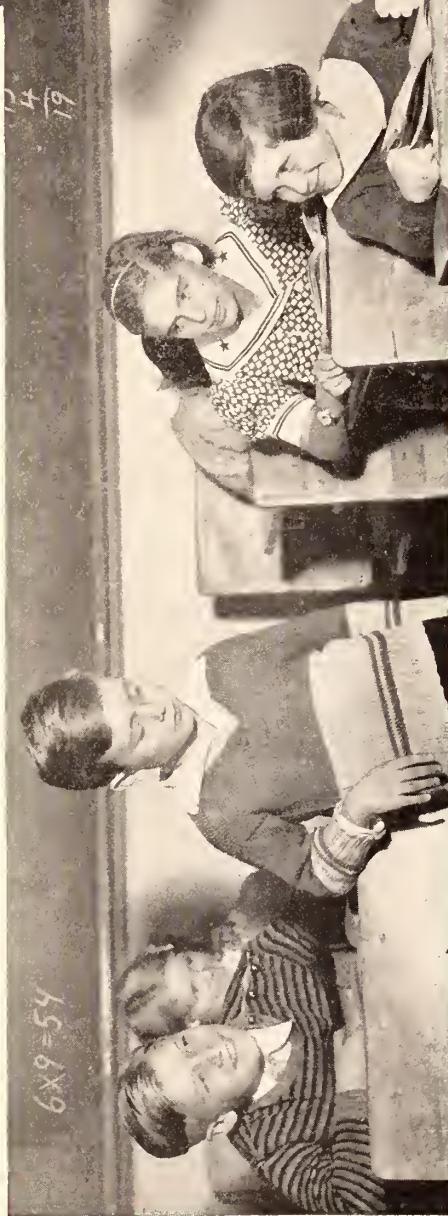
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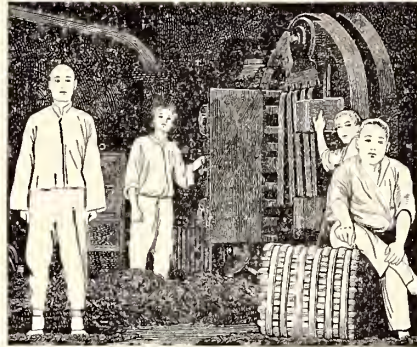
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VOL. XIX.

OCTOBER, 1935

No. 10

ANNUAL SUBSCRIPTION \$2

SINGLE COPIES 25 CENTS

Entered at the Postoffice at Phoenix, Arizona, as second class matter.

"Acceptance for mailing at special rate of postage provided for in section 1103, Act of October 3, 1917, authorized March 1, 1921."

## PHYSIOLOGY OF BONE IN RELATION TO TRAUMATIC INJURIES

W. WARNER WATKINS, M. D.

Pathological Laboratory, Phoenix, Ariz.

"Progress in medicine is rapid. Each year are presented innumerable new ideas. Add a fact or two, change the viewpoint and there is born a new truth. The well-informed man of today is in a few years hopelessly behind, unless he keeps constantly in step with progress."

This quotation from an address by Dr. Richard Smith, Regent of the Medical School of the University of Michigan, well expresses the urge which led to this preliminary paper on bone physiology. That industrial medicine has become a highly specialized art requiring the type of practitioner who "keeps constantly in step with progress" is well illustrated by legislative developments in the state of New York. By a recent law the state medical society recommends five physicians to be appointed on the labor council by the governor. These men have the responsibility of designating doctors in the different county societies who are qualified for various phases of compensation practice. This is a significant recognition of the fact that there are many doctors, legally qualified to be members of county societies but who are not considered competent to handle industrial injuries.

Occupying the center of interest in most industrial injuries is the question of damage suffered by bones, the organs of support and locomotion, and in the management of traumatic injury, even a simple fracture, it is important to have thorough understanding of the fundamental structure and function of bone tissues. From the days when we burned the midnight oil, as medical students, over bleached and polished skeletons, we have retained the impression that bone is a simple structure with stable function, that after maturing it remains

practically unchanged unless altered by injury or disease, and even then it has a persistent tendency to return to its former condition. If we still hold this idea we have not "kept step with progress," because physiologic research has shown that bone is a complex tissue, combining cellular activity and diverse biochemical processes, and is subject to marked and rapid changes from slight causes. In comparison with nerve tissue, which has a marked anatomical and functional inflexibility, there must be continual cooperation among several systemic and local factors in order to maintain the structural integrity of the skeleton or to accomplish simple bone repair. We can understand this better if we realize that in genetic evolution bone is **primarily** a storehouse for calcium and phosphorus, entirely comparable to the liver as a storehouse for carbohydrate. The utilization of the bony calcium depots for support and locomotion, as these functions developed, are **secondary** characteristics of the evolutionary process. In the biologic economy of the organism, the cellular demands for calcium and phosphorus are met by the normal supply of these inorganic salts in the blood stream; when this supply falls below the vital requirements, the demands are met by the rapid removal of calcium and phosphorus from bones, regardless of unfavorable results of such removal on support and locomotion. Obviously, then, in dealing with bone injuries, if we wish to insure bone repair by the deposit of calcium in the form of callus, we must first make certain that the general metabolic requirements for calcium are met, else biologic nature will be found reluctant to yield up its blood calcium to repair a local injury. In preserving the normal calcium metabolism several factors combine, such as sufficient intake of calcium and vitamin D, sunlight, hormones of several endocrine glands especially the thyroid and parathyroid, reaction of blood plasma, and so forth.

There has been interminable discussion as to whether bone growth in the developing organism and bone regeneration in repairing a local injury are governed by the same controlling factors and follow the same mechanism. The preponderance of evidence is in favor of their being so similar that, for all practical purposes, they can be regarded as the same. There are two schools of teaching with regard to bone formation: (1) The cellular or vital, which teaches that bone is formed by the secretory activity of living cells, the osteoblasts, which make bone just as epithelial cells make mucus or other special secretions; (2) the humoral or physico-chemical, which teaches that bone is laid down as the result of chemical conditions in the body fluids, the osteoblasts having the function of preparing the field for the deposit of calcium. This paper will not discuss these two theories, partly from lack of time but chiefly because, in the final analysis, the differences are academic and of no practical bearing on the problems which the surgeon meets. There are important facts on which there is general agreement.

Bone is modified connective tissue. That is a trite statement with profound significance, because it means that wherever and whenever bone is formed, it must arise from pre-existing connective tissue of a more primitive type. The process must always start with undifferentiated mesoblastic cells and pass through the same series of changes, whether the process is in the ossification centers of growing bones, or in the repair of a fracture by conversion of callus into bone tissue. (1) Recalling our first lessons in embryology, all forms of connective tissue arise from the mesodermic cells which are all alike in the beginning and differentiate into various types of connective tissue, such as areolar, reticular, lipid, fibrous, cartilage and osseous. This mesodermic tissue, before differentiation occurs, is called embryonic tissue, which is the necessary antecedent of any sort of connective tissue at any age. If we hold fast to this principle, our understanding of bone physiology and bone repair will be simplified. Without antecedent embryonic connective tissue there can be no new bone. (2) In the growing or mature individual, this embryonic tissue quickly appears after injury, known as granulation or organization tissue. Given suit-

able conditions, this undifferentiated granulation tissue is capable of being transformed into any type of connective tissue, such as fibrous, fatty, cartilage and bone. Not only must there be antecedent embryonic or granulation tissue in order for bone to form, but there must also be suitable systemic and local stimuli which will lead to the differentiation of this tissue through several stages, culminating in the deposition of calcium and the conversion of the calcium deposit into bone tissue.

Bone formation then occurs only with the concurrence and concatenation of several factors, some systemic and others local.

**The SYSTEMIC FACTORS are: Calcium and phosphorus content of the blood, intake of calcium and phosphorus, parathyroid hormone, vitamin D, reaction of foods and intestinal contents, and hydrogen ion concentration of plasma.**

In health the calcium and phosphorus content of the blood is maintained at a constant level, and bone will not be formed at the expense of blood calcium. We repeat that the primary metabolic demand for calcium and phosphorus is not for bone formation but for vital processes and only the excess calcium is stored in bones which are thus somewhat fortuitously made suitable for their secondary functions of support and locomotion.

The intake of calcium and phosphorus in the form of food must be sufficient to meet the metabolic demands of the whole organism; lacking this the calcium will be removed from the skeletal storehouse and utilized in the general body economy. Such metabolic demands may even call for the calcium already deposited in a callus; for it has been experimentally shown that the callus about a fracture can be made to disappear by feeding a diet deficient in calcium.

The mobilization of calcium is controlled by the internal secretion of the parathyroid gland. Under the influence of parathormone calcium is removed from bones and thrown into the blood stream. Hyperparathyroidism, therefore, brings about a local or generalized halisteresis, which may be followed by the redeposit of calcium in areas where local factors are favorable for such deposit, or by the excretion of the surplus blood calcium through the kidneys.



Vitamin D is necessary for the normal distribution and deposit of calcium. This vitamin is usually supplied in a properly balanced diet, but if this is not the case it can be given artificially.

The reaction of foods and of the intestinal contents must be favorable in order to promote the absorption of the ingested calcium into the blood. It is obviously useless to provide calcium by mouth when the intestinal conditions are such that it will be precipitated as insoluble salts or combined in such forms that its absorption into the blood stream will not occur.

The hydrogen ion concentration of the blood plasma must be favorable, since calcium and phosphorus compounds are sensitive to slight changes in reaction. A striking example of this is the profound demineralization, of the skeleton which occurs in renal rickets, of chronic vascular nephritis due to upset of the pH of the blood through accumulation of phosphorus which the damaged kidneys cannot eliminate.

**The LOCAL FACTORS are: Circulatory, neurotrophic, local surcharge of calcium, enzymic action of phosphatase, cellular activities, and mechanical stresses.**

The calcium, phosphorus, hormones, vitamins and other substances dissolved in the blood serum and plasma must be brought by the circulation into intimate contact with areas where bone formation is to occur. This means that the integrity of the circulation or the vascularity of the part is the *sine qua non* of any bone growth or repair. In the treatment of a fracture it is much more essential to preserve the blood supply to the area of injury than it is to secure anatomical alignment of fragments, because if the blood supply is interrupted, healing cannot take place, no matter how nicely the fragments are adjusted. Many surgeons have very hazy ideas about the sources of blood supply to a given area, and their forcible repeated and prolonged manipulations must inevitably tear the delicate periosteal blood vessels or even larger vessels adjacent to the fracture, and trauma which interrupts blood supply tends to prevent bone repair, no matter how beautifully the reduction looks on the x-ray film. Surgeons are usually careful to preserve the circulation in the external tissues, though they often overlook the more es-

sential point that the circulation to the bone itself must be intact, or must become re-established if it has been interrupted, before bone repair can occur. Long bones are nourished partly through the nutrient arteries, but at the epiphyses and about the joints the blood supply comes mainly from the periosteum and the ligaments supporting the joints. In the wrist, ankle and foot this latter source of blood is especially important, the carpal and tarsal bones being nourished almost entirely by intimate connections with the surrounding ligaments.

There has been much discussion over the importance of the sympathetic nerve control in bone metabolism. The discussion has gradually narrowed down to the mechanism of the control, its actuality being no longer disputed. Nerve control over bone changes is probably exerted through the sympathetic vasomotor circuit reflexly increasing or decreasing the rapidity of the blood flow through given areas. Whenever the rapidity of blood flow through bone is increased, calcium is taken out of the trabeculae; when stasis of circulation occurs, calcium tends to deposit.

Lerihe and Poligard make much of the importance of a local surcharge of calcium produced by the breakdown of normal or devitalized bone, in order to supply ready calcium for new bone. The necessity for this is disputed by Key and others who call attention to bone formation in tissues where there is no pre-existing bone, and to the growth of bone in the embryo. The proponents have ready answer to these objections, claiming that the local surcharge of calcium for bone formation in the embryo is furnished by the mother, calling attention to the osteoporosis of pregnancy where the mother gives up her own bone calcium to supply the demands of the growing child.

In the final analysis, the actual precipitation of calcium out of plasma is brought about by the enzyme phosphatase. This enzyme probably is secreted by osteoblasts and splits the phosphate esters of the plasma into insoluble inorganic salts which are then precipitated.

The conversion of deposited calcium into bone tissue must be done by cellular activity. Callus is not bone and entirely too often is not converted into bone, but remains as inert in-

organic deposit unable to perform the function of osseous tissue. The osteoblasts, the osteoclasts and other living cells, with the help of ingrowing capillaries to supply the food materials, eventually transform callus into bone tissue.

Concomitantly with the cellular activity in forming bone tissue, there must be exerted the same forces which brought about the transformation of calcium storehouses into organs of support and locomotion in the evolving organism—the mechanical stresses and strains of use. Every surgeon knows that in treating a fracture, the time comes in the process of repair when rest becomes harmful and functional use is demanded if repair is to continue. The usual idea is that this resumption of function is for the purpose of restoring the lost tone of muscles and ligaments; this is true but it is just as true that function is required for the conversion of callus into living bone and developing the architecture of support in this bone tissue.

A better understanding of bone metabolism may be gained by a brief survey of the osteomalacias which result when some of these factors are lacking. According to Morse, malacias of bone may occur from any of several primary defects in metabolism or osteogenesis.

When there is a primary defect in the mesoblast so that insufficient connective tissue groundwork is laid down, bone will not form. In these conditions there is no lack of calcium and no defect in calcium metabolism, but without pre-existing embryonic connective tissue, bone cannot develop. This condition is found in osteogenesis imperfecta of infants and in fragilitas ossium of adults.

In some conditions there is no lack of connective tissue groundwork, but there is an insufficient intake of calcium or a deficiency of vitamin D, or a combination of these, and lime does not deposit in normal manner. Examples of these conditions are infantile rickets and adult osteomalacia.

Where the primary defect is in retention of phosphorus. There is alteration of the pH of the plasma with bone decalcification. The most striking example is in so-called renal rickets, which occurs in chronic arteriolar nephritis. This produces the most striking halisteresis

found in any disease, and is usually accompanied by parathyroid hyperplasia.

The primary defect may be endocrine, as in hyperparathyroidism. This brings about a removal of calcium from the bones frequently followed by its redeposition in abnormal areas; to this group belong, with more or less certainty, osteitis fibrosa cystica, osteitis deformans or Paget's disease, certain types of arthritis—particularly the ankylosing spondylitis of Marie-Strumpell—leontiasis ossium, multiple giant cell tumors and possibly multiple myeloma. Calcium imbalance, with loss of calcium from bones occurs in hyperthyroidism, pancreatic diabetes and in basophil adenomas of the pituitary.

The primary bone defect may be local, due to disturbances in circulation as in acute bone atrophy, to pressure effects (as in Schuller-Christian's disease, Niemann-Pick's disease, Hodgkin's disease of bone, malignant metastases or primary new growths of bone) and to infections.

Having in mind these systemic and local factors which must be in physiologic harmony before bone tissue can form, what is the mechanism of such formation?

Connective tissue is universal throughout the body, not only as the tissue of support but also as the tissue of repair. Whenever an injury occurs, it is quickly followed by the formation of embryonic connective tissue. It is still a matter of dispute how the embryonic connective tissue of repair arises, whether it is newly formed from wandering cells (lymphoblasts, histiocytes) attracted to the point of injury, whether it develops by the multiplication of fibroblasts in the already existing connective tissue reticulum, or whether pre-existing connective tissue of differentiated type undergoes reversion to the embryonic state. It is an exceedingly interesting question with definite bearing on many problems of inflammation and repair, but a question into which this paper cannot go. It must suffice for us to remember that in response to and in consequence of injury, however slight, embryonic connective tissue does arise and proceeds to repair the tissue damage by a sequence of changes which transforms the embryonic tissue into a more specialized form. (6) With bone repair there is a definite sequence of events: (1) The ap-



pearance and formation of embryonic connective tissue; in cases of fracture the blood clot organizes and is transformed into granulation tissue. (2) Edematous infiltration of the granulation tissue occurs, the whole traumatic area becoming swollen and hard; this edema is of a peculiar type and is found only in localities and tissues where calcium is to be deposited; if it is lacking at the site of a fracture, non-union should be anticipated. (3) Contemporaneous with the edematous infiltration, the fibrillar network becomes augmented, swollen and more sharply defined; these fibrillae are to become the fibers of Sharpey of bone tissue. (4) In the network of modified connective tissue fibrils there appears a homogeneous substance, viscous and resistant, called the pre-osseous substance or osteoid tissue; the marginal lines formed by this substance have the arrangement of future bone trabeculae; the pre-osseous framework pushes out in all directions without orderly arrangement; the direction of the bony trabeculae are determined by mechanical stresses. (5) Almost immediately after the appearance of the connective tissue latticework, calcium begins to deposit, and this deposition continues to follow the pre-osseous framework; the deposit of calcium diffuses itself throughout the modified connective tissue. (6) The architectural organization of the bone tissue is determined by mechanical stresses orienting the trabeculae in definite directions.

It may appear to be a far cry from these principles of bone physiology to a practical application of them in treating bone injuries. However, this paper will fail of its purpose unless such practical application can be suggested. Hours might be consumed in discussing even briefly the various lesions or groups of lesion in which the principles set forth have direct bearing. A typical example or two will be used, merely to assist in fixing the principles in our minds. The repair of bone injury always takes place by an orderly process of physiologic bone regeneration, in which the factors discussed interplay and exert their influence. The repair of fractures and the causes of failure to repair will be discussed in greater detail in another paper of this symposium. A condition which brings to mind several important points in bone metabolism and to which little attention is given by the average

surgeon is a traumatic lesion first described by Sudeck 35 years ago and variously designated Sudeck's atrophy, acute bone atrophy, acute traumatic osteomalacia, traumatic osteoporosis, post-traumatic painful osteoporosis. So important is this condition regarded in Europe that it has twice within the past 10 years been made the subject of chief discussion at the German Orthopedic Congress; of the approximately 100 articles in the literature on this subject, only 10 are in English and until the past two years only one article had appeared in English on this subject. The lesion usually occurs in the extremities or in the spine, following what seems to be a mild trauma; in the lower extremity, a sprained ankle is the usual diagnosis. After a few days the ankle appears more swollen and discolored; motion will be painful, often excruciatingly so. X-rays in the beginning will show no bone change, but after a period of time varying from a few days to two or three weeks, a peculiar patchy calcium loss can be observed, with localized areas of rarefaction in the heads of metatarsal bones; these may be so sharply circumscribed as to suggest localized infection. After a few weeks, the joint outlines of tarsal bones will disappear and the whole tarsus takes on what has been aptly described as a melted-ice appearance which doubtless is often diagnosed as tuberculosis or pyogenic infection. The condition is preeminently one of interference with the circulation or vascularity of the bones; it may be due to direct interference by tearing of the intimate connections between bones and ligaments through which the bones are nourished, or it may be by reflex effect through the sympathetic nerves, upsetting the vasomotor control. By increased speed of circulation the calcium is literally washed out of the bones and redeposited in the soft tissues which become stiff, edematous and eventually fibrotic.

Henderson has stressed the necessity for understanding the condition and correctly evaluating the pathology, if a long period of disability is to be avoided. The treatment is totally different from that usually given a sprain. Sudeck's atrophy is not to be treated by plaster casts, splints or even long periods of rest. Persistent functional use and muscular activity, with heat and massage, in spite of pain or discomfort, are the measures devised. If a case

of acute traumatic osteoporosis is placed in a cast further structural changes and a long period of disability will certainly result, and very likely permanent damage will follow. The condition described by Gordon as post-traumatic peri-articular fibrosis is probably this same type of lesion. The so-called traumatic spondylitis of Kummel probably has the same causative mechanism as Sudeck's atrophy. That type of spine injury requires the same fine discriminating judgment on the part of the surgeon as regards adjustment of rest and functional activity.

Examples could be multiplied but enough has been said for the purpose of this preliminary paper, which is to bring to mind the importance of a knowledge of bone physiology and call attention to its intimate bearing on the handling of industrial injuries. A fracture is not just a broken bone which will heal if placed at rest. It is an injury in a living tissue which is exceedingly complex in structure and metabolism. Not only is it an injury to a living tissue, but that tissue is an integral part of a living organism whose every resource needs to be focused on the reparation of the injury, if we are to expect complete regeneration and restoration of function. An often quoted extract from Leriche and Poligard's monograph opens up for us the horizon of our endeavor in treating bone lesions:

"The problem of osteogenesis has passed through many phases. It has been histological and surgical, and at the present time is above all chemical. . . . Chemists and physicists alone can open up new horizons by giving us some of the certainties we lack. . . . When they have solved certain pending questions, we can then progress and perhaps have bone formed at will, accelerate the union of fractures, and prevent the pathological rarefactions of bone."

Since this was written very definite progress has been made toward this goal, and our chief problem is rapidly becoming one of making use of the material which research is continually supplying.

**CLINICAL DIAGNOSIS BY LABORATORY METHODS**—by James Campbell Todd, Ph. B., M.D., and Arthur Hawley Sanford, A.M., M.D. W. B. Saunders Company.

This is the eighth edition of this popular laboratory work. Much new matter has been added to this volume which has been so well and popularly known that there needs to be little said about it by a reviewer. The publishers have done their work in as nearly an ideal fashion as is possible. A world of matter is crowded into relatively small space. Although there are nearly 800 pages the book is easy to handle and not unduly heavy.

## BONE REPAIR AND FAILURE AFTER FRACTURES

E. PAYNE PALMER, M. D.  
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The complete fracture of a bone usually results in tearing of the endosteum and the periosteum with damage to surrounding soft structure. Blood vessels are ruptured. Blood is the most important factor in the repairing of fractures. Organization of the hematoma is the first step in the reparative process; if the bone fragments are in proper alignment and close apposition the hematoma will fill in the gap between the ends of the bone and the broken off fragments and the surrounding space. Edema is a hindrance. Invasion of the hematoma by fibroblasts form granulation tissue and capillary sprouting. Up to this stage the process is practically the same as in the formation of granulation tissue in the healing of soft tissue.

Bone is connective tissue which contains specialized cells, the osteoblasts. The endosteum and periosteum play important parts in bone repair. Following injury to these structures, the internal vascular or osteogenic layers give off the osteoblast and they in turn invade the mass. There is now a mass of loose meshed, friable, organized tissue uniting the ends of the bone, unless there has been a failure to properly adjust the ends or there is an interposition of tissue between the ends of the bone. Calcium is deposited in the newly formed tissue, this being the beginning of the callus formation, after about 72 hours.

Robinson has demonstrated an enzyme, phosphatase, that causes the precipitation of calcium phosphate, produced by bone cells on the ends of the fractured bone and the broken off fragments. It is taken up by the hematoma and stimulates deposition of calcium salts. Potts has demonstrated that no appreciable calcium is deposited at the site of a fracture in the absence of a hematoma; in hematomas produced in the abdominal wall and fascia sheaths, failure to detect calcium was constant; therefore, he concludes that the hematoma about a fracture is a suitable medium for the deposition of calcium salts and for the formation of bony callus, and that fibrin is less effective



than blood as a medium into which osteoid tissue may grow.

When a hematoma fails to form, a weedy connective tissue overgrows the space between the broken ends and fibrous union occurs. If the bone ends are not brought into apposition and alignment, normal repair will fail and the ends will be sealed over by fibrous deposit.

The bone cells develop first as a gritty matrix and then a mass of callus of indeterminate consistency. The healing process continues until there is a dense concentration of calcium phosphate in the newly formed tissue and until firm bone results.

The vessels of the callus grow in from the medulla, the periosteum and the surrounding soft tissue. The new haversian canals run at right angle to the shaft. Rearrangement of the circulation and of the haversian canals are carried out gradually. Restoration is not complete until the newly formed bone has assumed an orderly structure in anatomical harmony with the rest of the bone. This comes with return of function and over a period of months. The bone cells gain strength in response to stress and strain repeatedly applied. This stress and strain must be applied gradually. A healed fracture should not be put to work too soon.

Exuberant callus is gradually absorbed as is also the granulation tissue and fragments of bone not concerned in the healing.

The calcium-phosphorous balance and metabolism in relation to the repair of fractures has been given careful study and investigation, but we know little of the physiochemical changes that turn calcium and phosphorus into bone. Radvin and Jonas who reviewed the literature and carried on careful investigation conclude that in the normal individual the metabolism of these elements plays only an indirect role in delayed or non-union and that other factors well understood play the major role; deficient retention and fixation of calcium and phosphorus may result in non-union. Speed concludes that it is impossible to prognosticate inadequate union by estimation of serum phosphorus-calcium, and that ordinary dietetic methods and administration of calcium salts do not appear to affect the rate of flow of calcium away from or into the bone. The parathyroids govern the calcium level of the blood, but it

has not been proven that they influence the deposit of calcium in fracture repair.

The delayed union is a condition in which bone repair is progressing slowly as shown by physical and x-ray examinations. Non-union is a condition in which solidifying bone formation has not occurred. Delayed union may progress to non-union. If a time limit is to be placed, we may consider delayed union existing if satisfactory bone healing has not taken place in from six to 12 months. If after exhausting all means to promote solid bone union, short of an operation, for six to 12 months and the bone ends fail to unite, the case is classed as one of non-union. It is estimated that delayed union occurs in 1.25 per cent of fractures and non-union in from two to three per cent. Delayed union and non-union usually occur in persons in apparently good health.

The causes for failure to repair normally are many—local and constitutional. The local causes are far more significant and many of them can be prevented and corrected.

Among the local causes are severe traumatizing injuries to both bone and soft structure impairing vitality and blood supply, multiple fractures, compound fractures, interposition of soft parts and bone fragments between bone ends, loss of large fragments of bone, malposition of the ends of the bone, inadequate reduction without apposition of bone ends, improper alignment and fixation, after proper reduction too much traction, disturbance of the circulation by tight bandaging and thick tight plaster of Paris cast, immobilization for too short a time, too early weight bearing and use, bone tumors, cyst, metastatic carcinoma and sarcoma, gumma, bone tuberculosis, osteomalacia, local severe sepsis, absorption of solid callus before complete restoration of trabecular alignment has been completed, and others too numerous to mention.

As a rule, constitutional conditions are not important factors in the cause of non-union. Kolodny concludes "that endocrine disturbances play a prominent role in the suppression of regeneration process of bone." Among the general causes are syphilis, anemia, malaria, starvation, severe hemorrhage, pregnancy, lactation, acute febrile diseases, diseases of the central nervous system, acute and chronic nephritis, erysipelas, diseases of the bone result-

ing in decalcification and many others of less importance.

The middle third of the humerus and the neck of the femur are recognized as localities where delayed union and non-union are likely to occur, due to deficient blood supply and cancellous character of the bone. Failure to repair in the neck of the femur is the rule rather than the exception; only 57.6 per cent of satisfactory results are obtained.

Surgeons have no power to repair directly any injured tissue. We have no treatment, dietetic, medical or surgical, that will guarantee to repair a fractured bone. The repair must be attained by the activity of the body cells.

The surgeon's duty is to carefully take and record a complete history and make a careful physical examination in every fracture of any consequence, to reduce the fracture quickly, obtaining and maintaining close apposition and true alignment of bone ends and fragments, to protect the organizing matrix and the young cells as they develop and to allow unrestricted circulation to the injured parts.

Bancroft believes that if a fracture is immediately treated in a manner which will replace as far as possible the fractured ends in suitable apposition allowing organization of the clot and the ingrowth of granulation tissue with its accompanying vessels, repair will invariably follow. We do have delayed union and non-union even when this treatment is carefully followed.

There is a great need for better anatomical reduction of fractures, a more detailed application of splints and appliances, a closer follow up, and careful, frequent observations of the progress of healing.

Delayed union calls for special care and watchfulness. The slow bony union may be coaxied into perfect bone repair.

Meddlesome surgery in delayed union should not be sanctioned. A varied, nutritious diet, including calcifying nutrients, acidified milk, egg yolk, high visceral proteins, fats of fish and meat, fresh fruits and vegetables are needed. The acid milk furnishes an abundance of calcium-phosphate salts; vitamin D catalyzes these salts. Fresh air, sunshine, local heat, superficial massage, violet rays, and diathermy are beneficial. Delayed unions frequently heal

rapidly and satisfactorily when cautiously used.

The successful treatment of non-union can only be obtained by surgical technique, combined with the methods suggested to hasten repair in delayed union.

If there is infection at the site of the fracture one should wait three to four months from the time the skin healed and then for three days give firm massage at the site of the fracture and watch for local and systemic reactions. If none occurs, proceed with caution.

The autogenous onlay graft is the operation of preference and the graft so applied is of the greatest service in the stimulation of osteogenesis. Grafting opens up large areas of raw bony surfaces and gives a higher percentage of bone repair than does any other method. In the operation for non-union of bone the fibrosed eburnated bone should be freshened and the graft should be massive and extend at least two inches beyond the sclerosed bone ends. Sclerosed bone has no further power of bone growth. Fixation must be as near as possible complete, and while we should avoid its use if possible, one may be compelled to resort to hardware to aid in fixation. All bone chips freed at operation should be inserted about the graft and a hematoma allowed to form at the site of the bone operation to begin the process of repair before the operation is complete. If the bone ends and the graft are kept in good apposition and alignment new bone will form and ultimately resemble the original bone in form, structure and strength. I have found it also necessary to use skeletal traction to maintain alignment and fixation.

Drilling the bone ends through small skin punctures opens blood vessels resulting in clots to receive the liberated osteoblast from the inner layer of the periosteum and endosteum, thereby stimulating bone repair with gratifying results.

Interested interns and nurses who will pay constant attention to details are needed to assist in these cases, as it is impracticable to attempt to have every nurse in the hospital trained to care for fracture patients undergoing treatment for failure to repair.

#### CONCLUSIONS

The detailed process of repair after the fracture of a bone should be thoroughly under-



stood by everyone who attempts to treat fractures.

The formation of a hematoma is essential for normal bone repair after fracture.

We have no method by which the calcium-phosphorous balance can be measured so as to prognosticate repair of fractures.

Causes for failure to repair normally after bone fractures are local and preventable in the majority of cases.

Treatment of a fracture should be centered more upon the local findings and immediate careful handling of the injured parts than upon the general metabolism of the individual.

We have no treatment that will guarantee to repair a fractured bone. This must be done by the body cells, the action of which is little known.

Early replacement of the fractured bone ends in as nearly perfect apposition and alignment as possible and perfect immobilization to protect the matrix is essential for normal bone repair.

Delayed repair calls for special care, probably not had at the proper time in most cases.

Failure to repair calls for surgical intervention and careful watchfulness, until complete repair has been attained.

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DISCUSSION by R. O. Schofield, M. D., Boulder City, Nevada: Repair of bone tissue requires events similar to the repair of connective tissue, plus the added event of the deposition of calcium. Details of the physiology of bone repair are controversial, though I believe all are agreed that a hematoma at the site of fracture is necessary. The hematoma, composed of local tissue fluids is the site of the simultaneous processes of regeneration and absorption. The medium possesses an acid pH and as such it allows for the optimal proliferation of osteoblastic reconstruction that leads to the formation of new blood channels and haversian canals. As the process proceeds there occurs a gradual natural change to the alkaline side necessary to deposit calcium, obtained locally or from the blood in callus. This biochemical response is probably controlled by the osteoblasts themselves although the deposition of lime salts may be purely a physiochemical reaction as suggested by Bancroft, or, it may be due to the influence of the phosphatase as outlined by Robinson in his studies

upon bone metabolism. Bone repair is complete when sufficient lime salts have been deposited to produce solid union.

Factors causing non-union are: (1) Incomplete and improper reduction of fragments so that granulation can not bridge the defect; likewise the interposition of soft tissue prevents the formation of adequate granulation tissue. (2) Inadequate immobilization or too early manipulation injures the newly formed tissues; such injury prevents normal granulation tissue from forming the preosseous matrix and causes it to form only scar tissue; lime salts cannot be deposited in scar tissue. (3) Inadequate blood supply to the fracture area. (4) Infection has a definite destructive action on new bone elements and tends to prevent union, possibly by its ability to disturb the biochemical medium of local tissues; acute infections, however, may stimulate granulation. (5) Failure of ossification is probably dependent upon what has previously occurred to the granulation tissue.

Successful treatment of non-union requires both mechanical and physiological consideration. I believe it is best carried out by the use of the onlay graft which has been popularized by Campbell and others. This is a less difficult procedure than the inlay double wedged end graft of Albee's which also gives excellent results. Drilling holes in the ends of the ununited bones as advocated by Beck of Kiel and Bohler of Vienna, I have not tried. I do not believe that the osteoperiosteal graft of Ollier, the intramedullary graft, the step up operation of Senn, or the use of various forms of mechanical fixation are to be recommended. The onlay and inlay processes are physiologically as well as mechanically correct and give excellent results.

It has been my opportunity at Boulder Dam to treat or to immediately supervise the treatment of more than 1500 fractures during the past 26 months. Less than 10 fractures have been treated with open reduction. Non-union has not occurred in any of the usual fractures where one might expect to find it. An ulnar styloid, two small tip fractures with widely separated fragments from internal malleoli, and one fractured tibial spine healed by fibrous union on the inter condyloid ridge in a knee, represent our total number of non-

unions. The inter-condyloid ridge fracture is the only one with functional disability, and the industrial commission held that open operative procedures could not improve the stability of the knee and might make it worse.

The showing of practically no non-unions in this series is attributed to the following: (1) Closed reductions almost without exception; (2) fractures seen early; (3) compound fractures debrided and converted into simple fractures wherever possible; (4) accurate reduction and skeletal traction as advocated by Bohler; (5) non-padded plaster casts for absolute immobilization and fixation until the x-ray demonstrates the presence of sufficient callus formation; (6) active muscular use of uninjured portions of the extremities to insure proper blood supply to fracture areas; (7) cautious manipulation and careful, frequent follow-up examinations; (8) recognition of delayed union cases and these treated by external fixation splints or casts or walking stirrups, all of which used in conjunction with active exercises and frequent follow-up examinations.

With this definitely established routine in the immediate accurate reduction of fresh fractures, followed by sufficient absolute fixation, cautious manipulation, preservation of proper blood supply, and careful follow-up examinations it is my experience that non-unions will be negligible, and complete bone repair expected.

It has been a privilege to discuss the papers which show thorough appreciation of the entire subject. I particularly would refer to Dr. Palmer's statement: "We have no treatment that will guarantee to repair a fractured bone; this must be done by the body cells the action of which we know very little."

#### DISCUSSION

DR. JOHNS: Both Dr. Watkins and Dr. Palmer have said much about circulation, all of which fits in with my paper as given this forenoon. These two papers are distinctive contributions to the study of bone injury and repair. I express my compliments and appreciation.

Dr. Wilkinson: Dr. Palmer speaks of five per cent non-unions. How does he check up to know he gets union? Are too many x-rays ordinarily taken?

Dr. Greer: Dr. Watkins and Dr. Palmer in these two able papers have really given us something we can take home and study. I also commend Dr. Schofield on his clear-cut discussion. It occurs to me that often we open reductions too soon. Everything possible should be done first and resort to open reduction only as a final measure. Perhaps



we x-ray too often. I should like to ask about this. There is a relatively small number of non-unions. Modern diet and use of sunshine undoubtedly has much to do with this. It is a shame to pass by these two papers without the discussion due them. All we can do in this brief time is to thank Drs. Watkins, Palmer and Schofield for what they have brought us and to profit thereby.

Dr. Duncan: I ask Dr. Schofield whether or not there is a considerable number of non-unions in his cases of multiple fractures.

Dr. Sult: No one has said anything about the application of heat for delayed unions. I should like to ask about this.

Dr. Palmer Dysart: I should like to ask Dr. Schofield how many cases of fracture of the head of the femur there were among his 1,500 cases.

Dr. Schofield: Answering Dr. Dysart, there were only two cases of fracture of the head of the femur in the number of cases cited. The ages represented range from 31 to 35½ years; this probably accounts for the lack of this type of fracture. As to multiple fractures our greatest number at Boulder has been 22, with 17 and 10 in second and third ranking respectively. Relative to non-unions in these multiple fractures, there have been none except for a sliver fracture. As to Dr. Greer's question relative to a possible over-use of the x-ray, our experience at Boulder has been to take as many as we like without fear of resulting trouble. I emphasize that the doctor himself must see these cases, often several times a day and not entrust the care to nurses and orderlies.

Dr. Watkins (concluding): The only effect the use of the x-ray would have on the fracture would be to hasten the union to develop calcium, and is not strong enough under modern technique, to blast the cells. Some physicians may take too many x-rays from the standpoint of the patient's finances. The problem is economic and not biologic. Dr. Schofield has given us new thoughts on bone physiology. For this we are grateful. In non-union there are a number of deductions to make or consider. There is the lack of ability to maintain or retain vascularity. Calcium does not become bone until capillaries have invaded it and converted it into bone. Until functional use of the bone is restored its architecture is incomplete. Along with Dr. Schofield I, too, should like to stress Dr. Palmer's point that there is no treatment that will guarantee to repair a fractured bone. We do not know what is needed through the blood serum. I hope to live to see the day when we do know this and will be able to tell the patient just what is lacking.

Dr. Palmer (concluding): Dr. Schofield's discussion is a valuable contribution to the subject of bone injury and repair. He has clearly shown what can be done and what we as individual surgeons should do. One fault is that we can not always get on the job early enough. Dr. Schofield has every facility to treat early and to see the patient as often as the case demands. Dr. Palmer, medical referee for the Industrial Commission, has asked me at times why I make so many visits to some of these patients. Dr. Schofield has answered this for me. Constant care on the part of the doctor is necessary. However, it imposes a financial burden on many patients which gives another problem that must be considered. That is a problem that concerns the doctor in private practice. The use of the x-ray varies in every case. If the case is one where proper alignment is doubtful, the x-ray must be resorted to frequently. All serious fractures must be x-rayed often. There is no harm in their use under modern technique outside of their effect on the patient's purse. Dr. Watkin's paper is most

helpful. We should have more and more papers on physiology; its importance can not be overestimated.

## CARPAL BONE INJURIES INDUSTRIALLY CONSIDERED

DR. R. F. PALMER, M.D., Medical Advisor  
to the Arizona Industrial Commission

In the consideration of injuries from an industrial standpoint, we are especially concerned with functional restoration of the injured member as relating to the occupation of the individual.

Carpal bone injuries industrially considered are therefore of importance in direct proportion to the importance of hand function in industrial life. Looking on the hand as a tool necessary in the manifold operations of industry, its functional importance becomes at once apparent, and any condition which interferes with the function of the hand is responsible for a proportionate loss in the industrial value of the individual.

Practically all functions of the human hand, such as thumb-finger apposition in the finer arts, grasping of large and small objects, prehension, carrying, et cetera, are dependent on the presence, strength, and flexibility, of the fingers. Without functioning fingers, the hand is of use only in pushing or in holding objects by pressure. Without function of the palm or carpo-metacarpal region, the fingers are of little value. So, too, the hand itself is useless without the arm to control and guide it.

Accidents causing injuries to the fingers or arms are usually immediately apparent and proper steps are taken to bring about as great a restitution of parts and return of function as the given injury may permit. In the carpus, however, there occur injuries not always easy of recognition in the beginning and capable of causing serious disfunction of the hand. It is to these injuries that I call attention, not from the standpoint of adding anything new to the medical literature, but for the purpose of emphasizing the industrial importance of permanent functional disabilities resulting from carpal injuries. The illustrative cases to be presented have come to attention in connection with my duties as medical advisor to the Arizona Industrial Commission.

First in importance, because the most frequent of the carpal injuries and often most serious from a disability standpoint, are fractures of the carpal scaphoid. This injury is not uncommon in industry. It is usually produced by indirect violence from falls on the hand extended in radial flexion. It is often associated with other injuries and dislocations of the wrist and carpals. It is only to be recognized early by means of the x-ray. Non-union of the fragments together with rarefaction or atrophy of the bone, associated perhaps with arthritis of the wrist, may lead to serious and prolonged industrial disability. Of the two cases of this fracture to be presented, one, complicated by other injuries in the same wrist, illustrates the difficulties sometimes met in diagnosis and treatment. The other shows the industrial end results where non-union, condensation of the bone and arthritis have occurred.

**CASE NO. 1.** E. D., white, aged 18. Referred for examination November 9, 1934, seven months following the injury.

**History of Accident:** The left hand was caught between a trailer and a truck body when they came together. The exact mechanism of the force applied is not known. Initial report was fracture of the radius and cuneiform, with dislocation of the carpus. The x-ray shows fracture of the styloid process of the radius, with dislocation of the proximal carpal row forward, the os magnum and cuneiform backward, with fracture of the cuneiform. After reduction of the carpal bones, under ether, the x-ray shows the carpal bones in proper position without displacement of fragments and with fracture of the cuneiform.

Because of the multiple injuries in this case, especially relating to the carpal joints, and because the fracture of the scaphoid was not recognized at the time, early passive and active motion was instituted. Several films taken along at intervals did not show fracture of the scaphoid clearly, but five months later the film shows the ununited bone. Some time later the attending surgeon reported a 75 per cent disability of the hand and asked for consultation to consider the advisability of operative treatment. Films taken at that time, November 9th shows the fragments of the scaphoid apparently united in good position. From another film taken on November 30th the fragments are again reported ununited. Manipulation under the fluoroscope also showed that union had not occurred, and finally films reveal the ununited fracture with condensation of both fragments.

The lesson to be learned from this case is to not underestimate the industrial seriousness of carpal injuries, and to realize that when prompt recovery is not made, it sometimes takes painstaking study to determine the exact pathology.

**CASE NO. 2.** C. W. O., white, aged 34. Referred for examination November 3, 1934, because of disability from a wrist injury sustained about five months before.

**History of Accident:** On July 16, 1934, when

handling timbers, a 6x6 timber slipped and struck him on the back of the left wrist. From x-ray taken at the time a fracture of the carpal bone was reported.

The following additional history was obtained: In January, 1931, an accident occurred which resulted in a fracture of the left scaphoid, after which he returned to work on light duty in 42 days. He states that while the wrist bothered him, he managed to get along until nine months later when he was again injured, sustaining a contusion of the same wrist—fibrous union. At this time he was off work for 26 days; he states that he was unable to use his wrist with any degree of freedom without pain and weakness for a period of two years, and that following that period it was gradually getting stronger up to the time of the present injury.

For the past seven months the member has been treated conservatively in a cock-up splint. The industrial end result in this case is shown in the present condition of a painful, weakened wrist, limitation of motion equal to 50 per cent of normal, and an equal loss of grip and carrying strength. Present x-rays show the ununited fracture, in the increase in density of fragments, and the arthritis at the wrist point. The condition is apparently stationary—for the time being at least. Whether or not operative removal of the bone at this time would lessen the disability does not come within the scope of this paper.

Carpal bone injury of a somewhat different type and one which, while not of frequent occurrence, is of considerable industrial importance, is a traumatic osteoporosis of one or more of the carpal bones. This condition apparently affects the semilunar most often and is then usually referred to as Kienbock's disease of the semilunar. The same osteitic condition, when occurring in the scaphoid, is known as Preiser's disease. The industrial importance of this condition relates to the difficulties of early recognition and to the fact that by the time, perhaps months later, the disability has become sufficiently serious to be recognized, the original slight accident which may have been responsible has been well-nigh forgotten.

**CASE NO. 3.** T. B., white, male, aged 23, was referred for examination January 18, 1935, six months after the injury. The personal history is unimportant except a Neisserian infection six years ago and a similar infection contracted during the past three months.

**History of Accident:** On or about August 1, 1934, while changing a tire on a truck with two tire irons one of the irons slipped. He thought at the time that it was the left one, and that he had sprained his left wrist, but now he thinks perhaps it was the right iron which slipped and flew over, hitting him on the left wrist. At any rate, the injury was apparently not severe at the time and he continued working providing himself with a wrist



band. After a few days the condition seemed to get better, but it always troubled him a little. Some three or four weeks later he noticed that on grasping objects or lifting with his left hand, he had considerable pain in the wrist. This condition became progressively worse, and about two months after the injury he consulted his surgeon. An x-ray taken at that time did not show a fracture and the case was treated as a sprained wrist over a period of a few weeks and then not heard from again until January 17th. The patient reported that following rest in a splint the wrist had apparently recovered, but on starting to use it again the pain and disability recurred. X-ray taken then showed an apparent fracture of the semilunar bone.

This case presents a rather typical history and x-ray appearance of Kienbock's disease, and is presented for the purpose of calling attention to this type of carpal injury purely from an industrial standpoint. When an apparently trivial injury to the wrist does not recover in due time, careful and painstaking investigation should be made that the diagnosis can be had at the earliest possible moment. While numerous dislocations, fractures and other traumatic conditions occur in the carpus, these few cases will call attention to the necessity for careful consideration of wrist injuries. As accurate diagnosis of lesions in this region can only be made by x-ray, early, well-taken and carefully studied diagnostic films are important.

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## THE TREATMENT OF CARPAL BONE INJURIES

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I wish to emphasize things that all know and yet may not always act upon when treating carpal fractures.

The wrist is a complicated joint. The hand is united to the forearm by three joints: the radio-carpal, the intercarpal, and the carpometacarpal joints.

This discussion does not include the fractures of the lower end of the radius but these fractures are frequently associated with fractures of the carpal bones and have a direct bearing on the treatment. One might not be able to put up a fracture of the lower end of the radius as he would like to if complicated by a fracture of the carpal bones and vice versa.

In certain fractures of the posterior lip of the

lower end of the radius the first row of carpal bones has a tendency to subluxate backward and if complicated with fractures of the carpus, the problem indeed becomes important.

Frequently a man receives an injury to his wrist and thinks it only a sprain and does not report for treatment, thinking that it will soon be better and he, many times, continues working unless his work is so heavy that it is impossible. Then when the case does not progress satisfactorily the man comes in and it is found that he has a fracture of the carpus. These fractures occasionally do not show up in the x-ray, not even in good films with proper exposure and proper development. The x-ray should be repeated in 10 days to two weeks, if there is any reason to believe that the injury is more serious than a sprain of the wrist. It is necessary to make an accurate diagnosis as the treatment of fractures of the carpal bones is different from the treatment of sprains of the wrist. In fractures long immobilization is necessary, while in sprains early active motion saves time. Treatment varies with the bone fractured. An associated dislocation should be determined, as this also varies the treatment. The complicating dislocation is usually of the semilunar. Because of its shape, it has a tendency to slip out of place when the carpal bones are compressed between the lower end of the radius and the hand. The dislocation should be reduced as soon as possible and before an attempt is made to treat the fracture.

The carpal scaphoid fracture is the most common of the carpus and comprises about 0.5 per cent of all fractures. It is commonly seen in young men and the frequency of the fracture of this bone is because the scaphoid and semilunar transmit the force of the lower end of the radius. Because of the shape and position of this bone it has a tendency to fracture while the semilunar has a tendency to dislocate or slip out of place. The great majority of these fractures are caused by falls upon the hands. In most cases the fracture is irregular across the bone near the middle. Occasionally the bone is comminuted and may be intra-articular with little displacement. This may lead one astray in the treatment as the first x-ray would show no displacement and an insecure dressing used. When the x-ray study

is made at the end of two weeks or later, instead of a nice little crack with no displacement, a fracture with separated fragments is found.

In the cases of fracture of the scaphoid associated with, dislocation of the semilunar or, fracture of the semilunar or, fracture of the lower end of the radius or, the lunar styloid, the additional injuries must be taken into consideration in the treatment. A crack across the scaphoid may be enlarged into a gap with large separation of the fragments after the manipulation necessary to replace a dislocated semilunar. It is best to check up after the manipulation.

Absolute immobilization for a long period of time of all carpal fractures is necessary. Our usual difficulty is in not starting the treatment soon enough. Many times we do not see the patient at first and do not have an opportunity to start early treatment.

Ready made splints are never adequate. They do not fit and they never immobilize the thumb, which is necessary. The most adequate splint is a circular cast snugly applied from the upper third of the forearm to the metatarsal phalangeal joint of the fingers and the interphalangeal joint of the thumb. The best position, usually, is a slight cock-up and radial flexion or abduction with the thumb in abduction. This approximates the styloid of the radius and the trapezoid against the outer fragment and compresses the outer fragment against the inner fragment which is jammed up against the os-magnum. In this way the broken fragments can be held in approximation. This cast is left on eight to 12 weeks, better 12. If it becomes loose it is removed and another immediately applied. The cast is removed permanently only after satisfactory x-rays have been taken showing union, and this regardless of the length of time.

In old cases the treatment is prolonged immobilization in tight skin fitting casts in such a way that the fingers can be used to stimulate blood supply. The next thing to try in case of failure is drilling of the fragments with a fine drill or even inserting a small autogenous bone peg after the drilling. Removal of ununited fragments of the scaphoid is not good treatment if it can be avoided. A crippled wrist invariably results. It may be the lesser of two

evils; that is the crippling may be less after the broken fragments have been removed but it may be greater. In removal good results depend largely upon early active motion. Physical therapy helps and should be used. Active motion is most important, and as definite exercise with something definite to do. Considerable disability must be expected.

Treatment of fractures of other carpal bones is also based upon the above outlined principles. These fractures are not so often seen except in crushing injuries where there is a large amount of injury to soft parts as well as bones. Ankylosis of the carpal bones and marked disability is the usual result in spite of treatment.

In summing up: Be sure that the case thought to be a sprain is not a fracture. Long adequate immobilization is all important. Immobilize in such a way that the fragments are held together. Do not remove the cast too soon, and do not be in a hurry to remove the cast in order to start passive motion and physical therapy. In old cases long immobilization drilling the fragments or the insertion of small autogenous bone pegs may accomplish union. A fibrous union is not inconsistent with good functional result. Do not be in a hurry to remove these fractured bones and fragments, as the results after removal are often unsatisfactory.

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## REVIEW OF THIRTY-ONE CASES OF CARPAL BONE INJURIES

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Of the 603 cases of wrist fractures treated at the Miami-Inspiration Hospital from 1917 to 1934, there were 31 cases involving fracture of the carpals. In these 31 cases carpal fracture occurred 34 times—the incidence was one in 19 of all wrist fractures seen. There were 30 males and one female; their ages ranged from ten to 44 years. The left wrist was fractured 16 and the right 15 times. Fracture was produced by transmitted force in 18 instances and by direct violence in 13 others. More than one carpal was fractured in three cases, the os magnum and unciform in two, and the scaphoid and cuneiform in one. There were 14



associated wrist fractures, and there were associated fractures of other bones in 11 cases, and six times both associated wrist and other fractures were present. The carpals involved in order of frequency were: Scaphoid 21, cuneiform four, semilunar three, os magnum two, unciform two, pisiform two, trapezium none and trapezoid none.

**Fractures of the Scaphoid (Navicular) Bone:** Scaphoid fractures encountered were: Twelve transverse, four comminuted, four avulsion, and one compression.

The associated wrist fracture were: Radial styloid six; fracture of the radius and ulna two; and in one case, there was a perilunar dislocation.

Other associated fractures were: Head of the radius one, fracture of the mid third of the radius and ulna one, multiple phalangeal fractures one, fracture of the radius of the opposite arm one, compression fracture of the second lumbar vertebra one, fracture of the coronoid process of the ulna one, and in one case, there were extensive destructive wounds of the forearm with fracture of the upper third of the radius and ulna.

**Fracture of the Cuneiform (Triangular) Bone:** In the four cases of fracture of the cuneiform the bone was comminuted in every instance, and the fractures were associated with other lesions of the wrist. In one there was a transverse fracture of the scaphoid with fracture of the radial styloid—in another, dorsal dislocation of the distal row of carpals and fracture of the radius and ulna; in a third there was extensive comminution of the lower end of the radius; and in the fourth there was an associated fracture of the radial styloid.

Other associated fractures were: Fracture of the opposite radius and ulna two, fracture of the internal malleolus of the right tibia one, comminuted fracture of the right tibia and fibula and six ribs one.

**Fracture of the Semilunar (Lunate):** Fracture of the semilunar occurred three times, and there were no associated wrist or other fractures. In one case the injury was not reported for more than two months, and the man refused to have the wrist immobilized. He continued to work and four years later there was no evidence of any impairment of wrist joint function.

**Fracture of the Os Magnum (Capitate) and Unciform (Hamate) Bones:** Fracture of the os magnum and unciform are considered together here as in both of our cases the lesions were associated—once in the right and once in the left wrist. Both were produced by direct violence, and in one case there was an associated fracture of the radial styloid.

**Fracture of the Pisiform Bone:** There were two fractures of the pisiform, one of which refused treatment because of the trivial disability, and the other was treated 38 days, primarily for an associated fracture of the base of the third metacarpal.

**Treatment:** Our carpal fractures have been treated along conservative lines. There has been no hard and fast rule as to the position in which the injured wrist was immobilized. However, in the scaphoid fractures unassociated with other wrist fractures or where these latter were of minor importance, the most satisfactory position and the one which better approximates the fragments and gives the greatest comfort to the patient is to place the hand in a cock-up position and slight radial flexion. In recent years we have discarded the cumbersome cock-up splint, and use instead a molded plaster of Paris cast which is changed two or three times during the period of immobilization for the purpose of gaining all extension of the wrist possible. Several of the fractures had to be treated with due regard for more important wrist fractures and apparently did just as well when the wrist was immobilized in a different position.

**Temporary Disability:** Temporary disability is considered here under five headings. In eight cases of carpal fracture unassociated with other fractures, the total loss of time was 244 days, the average being 35 days per case. In eight cases of carpal and associated wrist fractures, the total loss of time was 589 days, averaging 73.62 days. In five cases of carpal and other associated fractures, the aggregate time lost was 232 days, the average, 46.40 days. In six cases of carpal, associated wrist and other fractures, the total time lost was 1408 days, average was 234.66 days. There were two cases of reinjured carpal fractures; in one case the wrist was reinjured once; the time lost on account of initial injury was 55 days, and on account of reinjury, 65 days; in the oth-

er case the wrist was twice reinjured with time lost on account of initial fracture being 42 days, first reinjury 26 days, and second reinjury was 168 days. Total time lost in the two cases was 346 days, and the average was 178 days.

**End Results:** The follow up period in this series of carpal fractures has ranged from four months to 10 years. Twenty-five of our cases suffered no permanent disability; two are recorded as having a slight permanent loss of wrist function; there was a 10 per cent loss of wrist function in two cases, 15 per cent loss in one, and a 35 per cent loss in one. Permanent disability has not been estimated on inability to perform the duties of their usual occupation, but on pain, periarticular thickening, and restricted wrist motion. With two exceptions, the one who had a 15 per cent and the one who had a 35 per cent permanent disability, all were able to work at their usual occupations. In the one who suffered a 15 per cent loss of wrist function, his inability to continue as a miner was the result of associated injuries.

The case in which there was the greatest disability (35 per cent) was the one in which the same wrist was twice reinjured and received a total of 236 days treatment for the initial and two subsequent injuries. However, in spite of the estimated disability in his case, immediately after he received his release, he applied to one of our mine officers for work as a miner.

X-ray examination of healed carpal fractures usually reveals fibrous union in the scaphoid bone; we have seen only one scaphoid fracture in which we thought there might have been bony union. In two comminuted fractures of the cuneiform, there was firm bony union.

**Conclusion:** The usual unfavorable prognosis in carpal fractures is undeserved. If early recognised and appropriate conservative treatment is carried out, few carpals will require operation. Reinjured carpal fractures are decidedly more disabling than are initial lesions. Good function is compatible with fibrous union of carpal fractures.

Case Number	Sex	Age	-CAUSE-		-BONE FRACTURED-								Temporary Disability No. Days	Permanent Disability Based on Loss of Wrist Function	Follow up Period		
			Direct Violence	Transmitted Force	Scaphoid (Navicular)	Cuneiform (Triangular)	Semilunar (Lunate)	Os Magnum (Capitate)	Unciform (Hamate)	Pisiform (Os Pisiforme)	Associated Wrist Fractures	Other Associated Fractures					
1	M	26	—	X	R	—	—	—	—	—	—	—	29	None	3	Years	
2	M	42	X	—	—	—	—	—	—	L	—	—	38	None	2	Years	
3	M	30	—	X	—	—	—	R	—	—	—	—	19	None	6	Years	
4	M	33	X	—	—	—	—	—	L	L	—	—	97	None	3	Years	
5	M	22	X	—	—	—	—	—	R	R	—	X	107	None	6	Years	
6	M	29	—	X	R	—	—	—	—	—	—	—	31	None	4	Years	
7	M	24	—	X	R	—	—	—	—	—	—	X	65	None	1	Year	
8	M	28	—	X	L	—	—	—	—	—	—	—	42	None	8	Months	
9	M	26	X	—	L	L	—	—	—	—	—	X	104	10%	5	Months	
10	M	35	—	X	L	—	—	—	—	—	—	X	46	None	9	Months	
11	M	28	X	—	L	—	—	—	—	—	—	—	37	None	6	Months	
12	M	26	—	X	L	—	—	—	—	—	—	X	46	None	9	Months	
13	M	22	—	X	—	—	—	R	—	—	—	—	45	None	2	Years	
14	M	15	X	—	—	—	R	—	—	—	—	X	X	125	None	10	Years
15	M	29	X	—	R	—	—	—	—	—	—	X	X	93	None	4	Years
16	M	37	X	—	—	R	—	—	—	—	—	X	X	316	15%	12	Months
17	M	33	—	X	—	—	—	L	—	—	—	—	Untreated	None	4	Years	
18	M	25	—	X	R	—	—	—	—	—	—	—	31	None	8	Years	
19	M	28	X	—	—	—	—	—	—	L	—	—	Untreated	None	4	Months	
20	M	37	—	X	R	—	—	—	—	—	—	—	37	None	3	Years	
21	M	21	—	X	L	—	—	—	—	—	X	—	112	10%	18	Months	
22	M	44	—	X	L	—	—	—	—	—	—	—	29	None	4	Years	
23	M	39	X	—	R	—	—	—	—	—	—	X	125	Slight	7	Years	
24	M	42	—	X	L	—	—	—	—	—	—	—	23	None	8	Months	
25	M	34	X	—	L	—	—	—	—	—	X	X	135	Slight	1	Year	
26	M	28	—	X	L	—	—	—	—	—	—	—	X	28	None	1	Year
27	M	34	X	—	R	—	—	—	—	—	X	X	635	None	5	Years	
28	M	26	X	—	—	R	—	—	—	—	X	—	36	None	1	Year	
29	F	10	—	X	L	—	—	—	—	—	X	—	51	None	2	Years	
30	M	22	—	X	R	—	—	—	Reinjured	—	—	—	55	None	4	Years	
31	M	32	—	X	L	—	—	—	Twice Injured	—	—	—	42	35%	4	Years	



## DISCUSSION

C. E. YOUNT: I am firmly convinced that the profession, or that part of it practicing traumatic surgery, has not as a whole grasped the importance of carpal injuries.

Carpal bone fractures with good position of fragments require at least six to eight weeks support, but, as Cotton puts it, "This extra discomfort and loss of time . . . is yet so new a method of handling that we are going to find many doctors accessories to the failure of union . . . and successful accessories—for years to come."

The matter of correct diagnosis is paramount. I was privileged to attend the Massachusetts General Hospital fracture course in 1929. At that time we were advised that in carpal scaphoid fractures in case of negative x-ray to repeat the x-ray in the lateral position. Furthermore, it is often found after three weeks that a fracture line will be seen which did not appear in the original x-ray. These "sprains" should be immobilized and then re-x-rayed in two to three weeks. Wilson and Cochrane says: "The more so-called sprains of wrist are subjected to critical roentgenological study the greater is the number of true bone lesions which are found. A fracture of the carpal scaphoid means a period of at least three months disability in a working man."

Kay and Cornwall say: "Many of the permanent disabilities at the wrist are the result of an erroneous diagnosis of sprain when the patient was really suffering from some more severe carpal injury."

Gordon Murray of Toronto, wrote in February of this year: "When a patient complains of a sprained wrist, with symptoms lasting more than two weeks, the possibility of a fracture of the carpal scaphoid should be considered and the necessary investigation undertaken."

Jones and Lovett wrote: "If an x-ray photograph is taken of any sprained wrist it will be found that a very large number of them are really cases of fracture of some bones of the carpus or a styloid process and not merely the injury of a ligament."

**Pathology:** D. B. Phemister, Brunswick and Day, J.A.M.A. Vol. 95, October 4, 1930, page 995) describe "Kienboch's Disease, Traumatic Osteoporosis—carpal lunata." One case is cited. A roentgenogram revealed slight reduction in density of the central ulnar portions of the bone. A lateral view revealed flattening of the lunatum most marked dorsally. The specimen removed at operation showed the larger dorsal fragment was flattened and contained a small cavity filled with dark gray fleshy material. The Palmer fragment consisted of dense bone; cultures gave long chain streptococcus.

As I interpret this symposium, it is Dr. Palmer's purpose to create a deeper interest in and a most careful scrutiny and proper care of all carpal injuries in Arizona in the future. Should these objectives be attained, in years to come we will have to look back on these essayists as pioneers in a new field of fracture work.

DR. DUNCAN: Fracture work should become a specialty. This state is slow in recognizing this. A man can be a good general surgeon and not be an especially clever fracture man. It seems to me that this work should be taken out of the hands of the general practitioner. It might well be a function of this society to make a survey of the profession of the state and list those who are willing to do this work. In smaller localities the doctor should be schooled in initial steps neces-

sary before sending the cases to specialists. It might well be the work of our Industrial Commission to aid in bringing this about for it seems of great importance.

DR. SWACKHAMER: I express my appreciation for this excellent symposium. I stress the need for early diagnosis, and call attention to the fact that some authorities recommend three routine pictures of these injuries. We can not be too thorough in this type of diagnosis.

DR. E. PAYNE PALMER: In the cases of delayed union or of non-union in carpal injuries the treatments used in other parts are applicable. Going in and cleaning up the ends of bones, getting the blood flow, carrying out the use of casts as outlined by Dr. Greer, are all necessary and important. The warning I sound is—not to be in too big a hurry to get these patients to use the hands.

DR. YOUNT (concluding his discussion): This program has been a real triumph for the Industrial Commission. Dr. Palmer has focused our attention that our results might be improved. Dr. Watts' statistics and findings on the 31 cases are extremely enlightening and beneficial. Dr. Greer's point that he did not care to operate all these cases is well taken. Such conservatism is to be commended. The various suggestions and demonstrations relative to the use of the x-ray will be of help to all of us; the findings are often astounding.

DR. R. F. PALMER (concluding): I express our appreciation to Dr. Watts for delving into 8 years of histories. The Miami-Inspiration hospital has some marvelous work to its credit. They are in the position to give early treatment and have men on the job constantly. Often these cases are not gotten early enough. The Industrial Commission is greatly concerned financially with the cases. The larger company with its own staff of surgeons does not afford the Industrial Commission a problem as does the smaller concern with no staff of surgeons. I greatly appreciate Dr. Yount's compliments of the Commission. Dr. Greer's conservatism is to be commended. From the Commission's stand point the functional use of the hand is of utmost importance. This use must not be forced too soon if the case is to be settled with physical and financial satisfaction to the patient and the Commission. I wish to express the sincere appreciation of the Commission to Dr. E. Payne Palmer for his year round splendid cooperation.

DR. WATTS (concluding): Dr. Yount has given us a most excellent as well as complimentary discussion. He has added much that is much worth while. Dr. Swackhamer's demonstration of routine pictures is not to be forgotten after the moment. I feel more than repaid for the time spent in research on the 31 cases. Your attention and consideration have been most gratifying.

DR. GREER (concluding): I wish merely to say thank you for a most profitable afternoon's discussion and symposium.

**MODERN TREATMENT OF FRACTURES**—by H. Waldo Spiers, A.B., M.D., Professor of Orthopaedic and Fracture Surgery, College of Medical Evangelists, Los Angeles, California. Published by William Wood and Company. Price, \$2.00.

Modern Treatment of Fractures is in reality a primer on the treatment of fractures giving the fundamentals of bone surgery, touching the high spots in practical application. It is especially useful for the man who has not had an extensive experience in fracture work.

## RELATIONSHIP BETWEEN THE ARIZONA INDUSTRIAL COM- MISSION AND ARIZONA MEDICAL PROFESSION

LEO GUYNN

(Manager Claims Department of The Arizona  
Industrial Commission).  
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Any discussion or paper dealing with the subject of the relationships existing between the members of the medical profession, particularly those practicing industrial surgery in this state, and the Industrial Commission should be prefaced with a few brief remarks describing first, what actually constitutes the relationships between our two respective organizations, and second, the predominating factors which exert both a guiding and a restrictive influence upon our relationships.

Strange as it may seem, our relationships are born out of human suffering—a workman in the course of his employment must be injured and disabled before we are ever brought together. Once an injury has been sustained, however, we must rise together and apply the full force of our combined effort and ability to bring about the physical restoration of the injured workman, and his speedy return to the ranks of industry. Truly, this field presents an opportunity for unified effort and cooperative action which should instill in every one of us a desire to put forth the best we have in us. It develops, therefore, that our relationships are in reality our actions from day to day as we strive to solve the mutual problems confronting us. With such a background our relations should indeed be a source of keen pleasure to all of us.

Now, with regard to the predominating factors having such an important influence upon the nature and character of our relationship: First, there is the legal factor, or the guiding influence exerted upon our relationships by the statutory and common law, and by the judicial precedents and court decisions, which have been handed down as a guide to those charged with the responsibility of administering the Workmen's Compensation Law.

Second, we have the human factor, or the

influence exerted upon our relationships by such commendable human traits as the spirit of self-sacrifice which causes us to place service above self, and to submerge our own personal interests where they are in conflict with the welfare of the common cause. And unfortunately, we are frequently compelled to combat disrupting influences such as selfishness and other weaknesses—and right here let me say that the Commission does not for one minute believe that the virtues are all ours, and the sins are all chargeable to the medical profession.

Finally, there is a factor which has, during the year, had a most beneficial and far-reaching effect upon our relationships. I refer to the Industrial Relations Committee of the Arizona State Medical Society.

Now, to explain more fully the influence exerted upon our relationships by the factors heretofore mentioned, we will return to the legal influence, which I can assure you is of extreme importance, and which cannot be too strongly emphasized. The Industrial Commission of Arizona was created by the people of the state in 1925, through the enactment of a Workmen's Compensation Law. The law not only sets up the qualifications required of the Commissioners and provides for their appointments, but goes further and very definitely regulates their conduct in office, and their administration of the law. Certain legal safeguards have been thrown up to assure the injured workman his day in court, with an opportunity to present his case before the Commission. Certain legal mandates compel the Commission to exhaust every known device to the end that the true facts may be developed in each case and a fair and equitable decision rendered.

No doubt many of you have frequently felt aggrieved at our insistence that you set down in terms of percentage your estimate of the permanent disability existing in some case which you have recently discharged from treatment. There is a definite reason why we must have your estimate in percentage. Our Supreme Court has ruled that our awards of Supreme Court has ruled that our awards must be based on a careful consideration the effect that a claimant for compensation has suffered a permanent disability equal to 25 per



cent loss of function of the right leg and compensation is awarded on that basis, then to justify our findings and award we must have evidence on file showing conclusively that there is a disability equal to 25 per cent loss of function of the right leg. It is possible that we may have another report estimating the disability at 50 per cent loss of function of the right leg, in which event we could find the disability to be either 25 per cent of the leg or 50 per cent of the leg and award compensation for either amount, and our award would be sustained. On the other hand, if the Commission attempted to strike an average and award compensation on the basis of 37½ per cent of the leg, or any other percentage of disability other than that reported, then our findings and award would be set aside by the Supreme Court, because the evidence would not sustain the findings of the Commission.

We know, too, that many of you have been subjected to considerable inconvenience, when you have been subpoenaed to testify at hearings before the Commission. You may rightfully say that you have submitted your honest opinion in the form of a written report, which should be sufficient and thereby obviate the necessity of your being present in person and giving testimony under oath. Decisions by our Supreme Court, however, will not permit the Commission to consider a medical report in a contested case, where any party at interest has been denied the privilege of cross-examining any physician or surgeon who may have examined the injured man and reported upon his condition.

I could go on at considerable length discussing the legal factor as it affects our relationships. However, I know that you will realize from my remarks on this subject that our course is definitely plotted for us in advance, and in the future when a request comes to you asking for a more definite and complete report, or when you are served with a subpoena commanding you to be present and give testimony at a hearing, we hope you will realize that the Commission is not trying to make your life miserable or asking for a lot of unnecessary red tape, but that we are trying earnestly and sincerely to meet the legal responsibilities which the Workmen's Compensation Law has placed upon us.

Now, for a few words relative to the influence exerted upon our relationships by the different human emotions, personality, or the lack of it, character and all of the things which go to make up the disposition of each of us as individuals. Because of the good which would come to those of us associated with the Industrial Commission, we had hoped that a paper dealing with the subject that I have been delegated to cover, would be prepared and delivered by some member of your group. In that way we hoped to have our shortcomings laid before us in order that we would see them as others see them, and in order that we could be given the opportunity to make good our boast that we stand ready at all times to set our own house in order.

**The greatest obstacle we have to surmount is our unwillingness to take into account each other's point of view, and our failure to realize that both the industrial surgeon and the Industrial Commission have a definite and important role to play in the scheme of events which bring us together.**

I know sometimes you are thoroughly disgusted with the whole field of industrial injury work, when you learn per chance that one of your patients has been referred to another physician for an examination, or when you are told that a patient you have had under treatment, and are still reporting as disabled, is dropped from the compensation rolls by the Commission, on the basis of a report submitted by our medical referee or some examining surgeon designated by us. I know too, that you are oftentimes brought right up to the boiling point, and occasionally some of you boil completely over, when we take some action which is especially distasteful to you in connection with the payment of your bills. All of the situations which you frequently find distasteful might be avoided if the Commission gave a little more consideration to your point of view.

We too experience a sudden rise in temperature when we learn for the first time that a certain favored patient has been kept in a private room for six weeks and allowed the services of a special nurse, while other industrial cases are fighting it out in a ward. All of this, in spite of the definite stipulation in our medical and surgical fee schedule that these accommodations may not be provided for a

period longer than seven days without being authorized by the Commission. Frequently we learn too late that some physician has purchased, at the expense of the Commission, some expensive brace or appliance, or has run up a large bill for laboratory or dental work, all without authorization and in spite of the fact that we might have procured the same items or service at a considerable saving. We might even have vetoed the expenditure in its entirety. These situations and many others could be avoided if the medical profession would give a little more consideration to the Commission's point of view. Many of you are of the opinion, no doubt, that we are running the question of high medical costs and excessive fees into the ground, but on the other hand if you will stop to realize that when the Commission engages your services in an industrial case, thereby delegating to you practically unlimited authority to pledge our credit for hospital accommodations, nursing services, drugs, etc., we are virtually handing you our pocket-book with the money uncounted. Our only request is that you keep expenditures at a point consistent with good treatment. Our only protection is your willingness to take into account our problems.

In closing, I shall say a few words about the benefit that has been had and the ground that has been gained through the efforts of your Industrial Relations Committee. When your committee first came together around the conference table with the members of the Industrial Commission, the problems to be solved and the results which we hoped to accomplish were obscure and somewhat doubtful. There was a certain amount of uncertainty as to the nature and scope of the activities to be covered by your committee and the Commission. It was not long, however, before the Commission realized that the members of the Arizona State Medical Society, in their relationships with the Industrial Commission, were represented by a committee of fair, broadminded, farsighted men, all willing to go to unusual extremes in their efforts to give to the Commission the benefit of their knowledge, to promote harmony, and to place the relationships arising out of our daily contacts upon a more straightforward, businesslike and unified basis. Complaints which certain members of the medical

profession had to make against the Industrial Commission were referred to the committee, and on one or two occasions the Commission also looked to the committee for relief and guidance in a situation where we felt that we were being treated unfairly. In every instance your Industrial Relations Committee painstakingly listened to both sides of the story and decided honestly and to the best of their ability the questions submitted to them. No better proof of the esteem and respect with which your committee is regarded can be offered than the fact that not once has their decision been questioned or disregarded. They have come to us frankly with constructive criticism and suggestions as to how our service to the medical profession might be improved. They have responded admirably to our requests for assistance and advice. On behalf of the Commission, I would say that we sincerely hope that you may see fit to continue your activities intended to bring about a better understanding of our mutual problems through a continuation of the efforts of your Industrial Relations Committee, and through the individual efforts of every member of your honorable profession.

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## INDICATIONS FOR SURGICAL TREATMENT OF PEPTIC ULCER

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Surgery holds an important place in the treatment in certain types of peptic ulcer, while medical treatment is definitely indicated in others. The successful handling of a large number of cases of peptic ulcer will depend upon the careful selection of cases for the type of therapy indicated.

Medical management is useful in both gastric and duodenal ulcers. Small uncomplicated gastric ulcers will often respond readily to medical treatment. However, unless a rapid response is obtained, surgery is indicated because of the danger of malignancy. Gastric ulcers larger than a 25 cent piece ordinarily should not be treated medically; medical treatment should show definite improvement within three weeks.



In duodenal ulcers, the problem is somewhat different inasmuch as the danger of malignancy is remote. Uncomplicated duodenal ulcers, especially in young persons with short histories of ulcer, should be treated medically as a rule for one year. If the ulcers have not definitely responded to conscientious medical treatment at the end of that time, surgery should be considered. In accepting a patient for a thorough course of medical therapy certain factors important. He must be co-operative and intelligent; his finances must be adequate to carry on a long course of treatment; and the occupation to which he will eventually return, must be of such a nature that it will not exact too great mental or physical strain.

Certain complicated cases of peptic ulcer ordinarily delegated to surgery, are better treated medically because of such extrinsic factors as cardio-vascular-renal disease, senility, diabetes and pregnancy.

The cases which should come to surgery are: Those who have been given a fair trial of medical treatment with failure; those who, because of occupation, social status or other reasons stated above, have not been accepted for medical treatment (in this group might be placed almost all railroad men whose hours of work and habits of eating are notoriously irregular); and the final large group of complicated cases.

The common complications of duodenal ulcer are: Perforations, obstructions, hemorrhage and those in whom malignancy can not be ruled out. Acute perforation is always a surgical emergency; any perforating lesion responds poorly to medical management and is best treated surgically.

Chronic obstruction arising in association with gastric or duodenal ulcer is a primary indication for surgical intervention. It has long been recognized that there are few surgical procedures that give better results than are obtained following pyloric obstruction. I recently reported a case of duodenal ulcer with obstruction which was neglected for nine months. When the patient finally came to surgery, an additional large ulcer of the lesser curvature of the stomach was found.

Hemorrhage, per se, is not necessarily an indication for surgical intervention and operation does not offer complete protection against recurring hemorrhage. **Balfour** reports nine per

cent of recurrent hemorrhages in a series of 500 cases. Surgery is only adequate if it removes bleeding points. A single hemorrhage is, therefore, not an indication for surgery. Hinton feels that conservative management is by far the better method of treatment and an operation is never indicated except in repeated hemorrhages. When, however, hemorrhages recur in spite of active medical management, surgery is indicated. Operation is probably never indicated during active bleeding. In hemorrhaging ulcers medical treatment and bed rest for 10 days prior to operation, are insurance that an operation will be helpful. Fowler and Hurevitz say that, although it is usually considered inadvisable to transfuse an ulcer patient who is still bleeding because of the likelihood of increasing the hemorrhage, they have not so found in their group of cases. Removal of the lesions is important and cases which have recurrent hemorrhages following surgery in which the lesion is not removed, present distressing problems.

Gastro-enterostomy is probably the most dependable and widely used operation in the treatment of peptic ulcer. The present refinements of the posterior gastro-enterostomy make the operation relatively safe and simple.

Many authors have condemned gastro-enterostomy in the treatment of gastric ulcers. In small gastric ulcers along the lesser curvature, however, cautery excision, together with gastro-enterostomy, has given satisfactory relief in 90 per cent of the cases. Also, in large gastric ulcers along the lesser curvature which are sufficiently removed from the pylorus to make partial gastrectomy difficult, it is best to combine knife or cautery removal with gastro-enterostomy.

Gastro-enterostomy has its main field of usefulness in the treatment of chronic ulcers of the duodenum. Gamble states that gastro-enterostomy is indicated in all cases of ulcer of the duodenum, except the easily accessible ones which are amenable to excision and pyloroplasty, or the bleeding ulcers and the acutely perforating ulcers in which it may or may not be combined with simple closure of the perforation. Balfour says that at the present time there is no conclusive evidence that any operation is more useful than gastro-enterostomy in cases of chronic duodenal ulcer, except in carefully selected cases. The operation is

not destructive and can be depended upon to give excellent and permanent results in more than 90 per cent of cases. It also has the distinct advantage over all other operations in that, after the ulcer has completely healed, the anastomosis may be disconnected with ease and safety, if desired. The danger of anastomotic ulcers following gastro-enterostomy are well recognized. Ogilvie puts the incidence as high as 20 per cent, while Heuer obtained data from 17 authors and found the average incidence to be only three per cent.

Authorities are more or less agreed that gastro-enterostomy is the procedure of choice when the ulcer is of long standing and there is definite pyloric stenosis.

In this country, the main contention in the surgical treatment of duodenal ulcers has been on the advantages of pyloroplasty over gastro-enterostomy. Various types of pyloroplasty have been described by Ramstead, Finney, Robson, Horsley, Strauss, Judd, Deaver and others. Most of these operations combine excision of the ulcer with enlargement of the pyloric outlet. As a rule, the less the pathology in the duodenum, the greater is the indications for pyloroplasty. Judd estimated that pyloroplasty can be carried out satisfactorily in about 50 per cent of all duodenal ulcers. In order to do a satisfactory pyloroplasty, the lesion must be relatively small and the duodenum must be freely movable and readily accessible. The indications for pyloroplasty might be summed up as follows: If there is slight stenosis of the pylorus; if the ulcer can be excised; if there is a history of repeated bleeding of the duodenal ulcer; if the ulcers are small; if there are few adhesions; if the duodenum is easily mobilized; if there is absence of inflammation around the duodenum; if there is a single ulcer; and in some cases in which gastro-enterostomy has failed.

In general, it might be said that pyloroplasty is a good operation in young individuals in whom medical management has failed and in whom the ulcer is of relative short duration without a great deal of retention and, provided that it can be performed without technical difficulty.

Many of the European clinics, particularly in Germany as well as several clinics in this country, use gastric resection as the operation of choice in dealing with peptic ulcer. Ogilvie

believes that, because of the high incidence of gastrojejunal ulceration following gastrojejunostomy, the mortality is lower and the results more satisfactory following gastrectomy. Walters investigated this subject and found that the ulcers in Germany were of a much more extensive nature and usually accompanied by severe gastritis and duodenitis, which probably explains the enthusiasm of the European surgeons for gastrectomy. Many surgeons have favored gastrectomy because they felt that extensive removal of the fundus of the stomach, together with the antrum, would decrease the acid secreting powers of the stomach and thus prevent future recurrences. Emery and Monroe believe that a radical operation on the stomach, which removes the antrum, removes the part of the stomach which has an alkaline secretion and should be abandoned. I demonstrated experimentally on dogs that the secretion from the pyloric antrum was protective and did not contribute to the formation of peptic ulcer. I believe, therefore, that resection is not justified as a routine procedure for peptic ulcer. There are definite indications for accepting the added risk of a gastric resection: When large gastric ulcers, particularly in the pyloric portion of the stomach, are present; in cases in which the ulcer is accompanied by extensive duodenitis and gastritis; in cases where a repeated history of bleeding, would seem to justify radical measures; as a secondary operation, when gastro-enterostomy or pyloroplasty have failed, and in all cases of gastric ulcer where malignancy cannot be definitely excluded.

#### CONCLUSIONS

Cases of peptic ulcer should be carefully selected before deciding on a medical or surgical course of treatment. In selecting the patients, their age, social status and the duration of their disease as well as the probable pathology, should be considered. If surgical treatment has been chosen, some form of one of the general procedures, gastro-enterostomy, pyloroplasty or gastric resection, should be chosen, depending upon the pathology present. In many cases, the decision as to the type of surgical procedure must be made at the operating table.

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## MEDICAL ANNALS OF ARIZONA

By ORVILLE HARRY BROWN, M. D.

Phoenix, Arizona

### PREFACE

The medical annals of Arizona have been gathered in fragments from numerous and widely separated sources. Among those who have been of assistance are the authors of the various books concerning this state and her citizens; first among those to be mentioned is the late Col. James E. McClintock, valued friend and patient, who so loved Arizona that he devoted much of his time and fortune toward preserving facts about her citizens and visitors. To have known him was a great privilege; from him came much information and stimulation for the task. His biographical volume along with those of Stone, Farrish and others have furnished sketches of the lives of many physicians of the present and recent generations.

The earliest physicians had no biographers. Their records must be gathered piecemeal from the silent files of old newspapers, from musty historical volumes, from invaluable historical novels and from vari-colored personal communications penned and verbally related by the living and then pieced and woven together the best possible in none too satisfactory a manner.

We have enjoyed many fruitful friendships which have yielded valuable data for our annals, acquired much stimulus and many facts

from various men and women now living, all of whom have been interested in preserving Arizona history; we delight in mentioning several, especially Sharlot Hall, Will Barnes, Dean Frank Lockwood, Dean John R. Murdock, present State Historian Elizabeth Touey, Judge Henry D. Ross, and last but certainly not the least, James M. Barney. The earlier chapters could not have been written with the completeness they exhibit except for the magnificent assistance of James Barney.

There are those members who have provided information essential to the bridging of the past generation with the present; among these are Drs. James E. Drane, John E. Bacon, E. Payne Palmer, John W. Flinn, Geo. M. Brockway, Win Wylie, E. S. Miller, and especially L. A. W. Burtch and Wm. V. Whitmore.

It is a great pleasure to publicly acknowledge gratitude to those herein mentioned and to all others who have given or will yet provide assistance in this undertaking.

### CHAPTER 1

#### EARLY MEDICAL PRACTICE IN THE SOUTHWEST

##### THE INDIAN MEDICINE MAN

The Indian medicine man was the first exponent of the healing art in Arizona. Every Indian tribe had its coterie of medicine men who were generally individuals of great influence within tribal circles. Although, in a general way, they practiced their art along similar basic lines, individually, they differed in their methods of curing the sick. Most of their healing was based upon the faith of the patient in the efficacy of incantation efforts and necromancy rather than upon medical lore.

Medicine men were believed by their tribesmen to possess certain influences over the spirits and other natural phenomena which supposedly caused sickness and disease, as well as over the benevolent spiritualistic agencies which could assist them in amelioration or cure. Incantation and jugglery were invariably practiced by them in their efforts to drive from the sick persons, the evil spirits or influences that were causing the bodily disturbances.

Terrifying noises were generally a part of the routine cure and it was nothing unusual for a whole company around a sick person—

over whom the "doctor" was practicing his cabalistic manipulations—to arise at certain intervals, chant and pound their bodies, yell, shoot arrows into the air, and fire off guns, in order to assist the medicine man in frightening away the evil spirits which had the sufferer in their clutch. Among some tribes failure to alleviate or cure the sick meant death to the unlucky medicine man while, among others, he was merely subjected to violent abuse.

In spite of much that was absurd and ridiculous in the medicine men's practices, they generally had some understanding of surgery and anatomy, and astonishing knowledge of the value of many medicinal herbs native to the Indian country.

#### THE TRAIL-BLAZERS AS DOCTORS

Most of the early southwestern path-finders, hunters and trappers were not only familiar with the simple home remedies of their forefathers but they gradually acquired the knowledge the Indians possessed of the medicinal use of native herbs and plants. Serious injuries and accidents were not uncommon among the people; they were able, as a rule, to cope successfully with even severe wounds and in a crude but remarkably efficient way set broken bones.

#### JAMES PATTIE

The first Anglo-Saxon visitor to what is now Arizona who had any practical knowledge of medicine, was James Pattie, a trapper and hunter from the mountainous region around Bardstown, Kentucky.

James Pattie and his father, Sylvester Pattie, assemb'ed, in the year 1824, a party of some 100 frontiersmen for a trapping expedition to the head waters of the Arkansas River. After many thrilling adventures this party disbanded; but a few of the boldest spirits remained in Nuevo Mexico where they organized, after obtaining permission from the Governor of that province, a small party to trap along the Gila River. Leaving Santa Fe on November 22, 1824, they struck out across the country, proceeding by way of the Santa Rita Copper Mines to the Gila River.

This trapping expedition lasted about five months and, as far as known, was the first organized party of whites to penetrate the Upper Gila Valley. Many of the natives having never seen a white man, fled at the approach of these

adventurers but others, more bold, viciously attacked them with bows and arrows. The Pattie party, cacheing the pelts they had gathered, returned to Santa Fe for fresh supplies; upon returning to the Gila for their furs, they found that the Indians had discovered their cache and stolen the contents. Going to the Santa Rita Mines, which they had known about, they entered into a treaty of peace with the Apaches (under Mangas Coloradas—Red Sleeves) whereby they were allowed to work the mines without molestation.

The elder Pattie, familiar with the method of reducing copper ores, obtained a lease on the Santa Rita mines and commenced a profitable working of that property. While the father was thus engaged, young Pattie, in spite of his father's remonstrances, set out on January 26, 1826, with a few companions on another trapping expedition into the Gila Valley. On this trip, lasting around eight months, the party passed down the Gila to its junction with the Colorado and ascended the latter stream well past its now famous and unrivalled Grand Canyon. The immense chasm and its labyrinth of gorges with their vari-colored walls aroused no great interest among Pattie's companions who viewed them only as provoking obstacles on their journey northward. They crossed the Continental Divide at South Pass and again found themselves in the plain country where they found the great buffalo herds that roamed that region.

The Pattie party then crossed the mountains to Santa Fe where bad luck again overtook them. They had been successful in their trapping and brought back a large stock of furs, but the Governor of New Mexico, claiming that the license formerly issued to the Patties did not cover this latest expedition under James Pattie, confiscated all the pelts belonging to the party, leaving them without recompense for their many months of privations and hardships. Young Pattie then joined his father at the Santa Rita mines.

In the spring of 1827 a trusted Spanish employee of Sylvester Pattie at the mines absconded with most of the money that the elder Pattie had been able to make during several years of hard work; he was forced to abandon his mining operations. The two Patties then decided again to try their hand at trapping in



an effort to re-coup their fallen fortunes; they went to the Gila River country with a party of about 30 men.

They traveled down the Gila and, after many engagements with hostile Indians, reached the Colorado, where all their stock was stolen by the Yumas. Here the party of trappers, their ranks sadly depleted by desertions, built canoes and floated down the Colorado to its mouth at the head of the Gulf of California, where, instead of finding settlements, they encountered, on each side, nothing but bleak and desolate shores. Burying their stores and furs, they crossed the sterile Lower California peninsula, suffering enroute terrible hardships; on reaching San Diego they were imprisoned by the Mexican authorities for lack of passports.

They were held in confinement for many months; the elder Pattie died in his cell without being allowed to see his son, for whom he piteously begged in his last hours. Young Pattie was finally released from prison. Most of the other members of the party remained in California among the Mexican inhabitants and became permanent residents of the country.

After remaining in California until the spring of 1930, Pattie embarked for Mexico and went to the capital of that Republic where he put in claims for damages for the losses he had sustained; he failed to obtain redress. He then went to Vera Cruz where he obtained passage to New Orleans, from which point he ascended the Mississippi to his old Kentucky home. Some years later Pattie published a book describing his party's adventures in the wild southwestern country; this provided a valuable source of information of the regions traversed by these aggressive pioneers of that early day.

#### THE PATTIES' MEDICAL KNOWLEDGE

Not only was the young frontiersman Pattie familiar with the effects of the ordinary, well-known, remedies of the pioneer period but he brought westward with him small-pox vaccine and was able to and did inoculate many persons, thus preventing somewhat the ravages of that dreaded disease. He used this knowledge to advantage, not only among his own companions but perhaps also among friendly Indians and other inhabitants of the isolated regions through which his group passed.

His knowledge of vaccination against small pox along with his ability as an interpreter was largely responsible for his being released from the California prison.

An epidemic of small pox was raging and he assured the authorities of his power to check the epidemic through vaccination if he but had his freedom. On release he promptly vaccinated the inhabitants of the missions, saving many lives and checking the epidemic. His use of vaccine was probably the first scientific medicine ever practised in the state of Arizona.

### BOOK REVIEWS

**DISEASES OF THE LIVER, GALL BLADDER, DUCTS AND PANCREAS**—by Samuel Weiss, M.D., F.A.C.P.; Chapter on Surgery by J. Prescott Grant, M.D., F.A.C.S.; Chapter on Roentgenology by A. Judson Quimby, M.D., F.A.C.R.; Paul B. Hoeber, Inc.: \$10.00.

The statement that there are 1100 pages of a book 7½ by 10½ inches devoted to the liver, gall bladder, ducts and pancreas, would seem to be proof that the author had made an extensive study of his subject. The volume is essentially a treatment of the every-day problems connected with the diseases of the organs in question. An exhaustive survey of the literature is presented. The illustrations are simple but adequate and very much to the point. There are 358 illustrations. There are 31 chapters and an appendix; 17 pages are devoted to the list of biliary tract diseases; 37 to anatomy; 27 to physiology; 38 to abnormalities; 22 to the examination of the liver and gall bladder; 60 to indirect examination of the liver in which it would seem that every known test is described. Other subjects dealt with are: portal hypertension, cirrhosis, tumors, cysts, tuberculosis, syphilis, jaundice, etc. The volume is a splendid reference work.

The publisher has done a beautiful job. The type is easily read, the pictures are clear, and it would seem that the book is one that will live indefinitely.

**THE PRINCIPLES AND PRACTICE OF UROLOGY**: by Frank Hinman, A.B., Leland Stanford Junior University, M.D. Johns Hopkins Medical School; Clinical Professor of Urology at the University of California Medical School.

Dr. Hinman's text on urology is a well written and readable manuscript. He covers the biological principles of urology in a comprehensive and extensive survey of the comparative anatomy of the genito-urinary tract, with a thorough study of the embryology and development of the various organs. He clearly demonstrates how the common abnormalities are apt to occur. In the clinical portion of the book he covers the ordinary principles of examination and demonstrates by numerous diagrams, photomicrographs, and pictures the various diseases and abnormalities that can be demonstrated. He covers thoroughly the method of diagnosing any given urological condition, in a clearly written and detailed manner.

Dr. Hinman's book is a valuable contribution to medical literature, as it is not only an excellent book for the medical student, but it is also an excellent reference book for all men in the medical profession, whether they are urologists, or general practitioners. He is to be commended for his excellent book.

—J.W.P.

# Southwestern Medicine

Printed by THE A. C. TAYLOR PRINTING CO., Phoenix, Arizona  
Published monthly for the Board of Managers of the four constituent societies.

VOL. XIX.

OCTOBER, 1935

No. 10

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## MEDICAL ANNALS OF ARIZONA

We are pleased to publish the first chapter of "The Medical Annals of Arizona." The material accumulated seems to warrant this beginning. We are the self appointed Arizona Medical Historian. It has been a lot of fun—to do the necessary reading. Purposeful reading is truly a great joy. We refer especially to purposeful relaxation reading. Of course every physician who is really trying to deserve his title gets his keenest joy from his purposeful medical lore reading along the lines of his greatest interest. The true physician would certainly be given his greatest punishment and anguish were he denied access to modern publications and sources of information on the advancements in scientific medicine (including, of course, our friends the really educated honest "detail men").

The material in the files of the Arizona Medical Historian is already voluminous — thanks to many persons. We have repeatedly asked each living Arizona physician to supply information to these files about at least one physician—the physician he knows the best. A considerable number of the physicians have complied with the request. Others have not. **Arizona Physicians!** If you have not supplied the historian's office the data about the physician whom no other physician knows so well as you know him DO IT NOW. It should be unnecessary to say more along this line in order to have co-operation from all Arizona physicians. A thumb nail sketch of the entire life of each Arizona physician is desired.

Information about other physicians than the one you best know will be gladly received and it is really your duty to supply these data. It is even more difficult to gather facts of some

of the modern physicians than of many of the early physicians. Perhaps an occasional early Arizona physician has gone to his reward leaving no record of his Arizona existence. For the most part physicians are generally of an importance to at some time or another attract the nose of the news-hound. The old newspaper files have yielded our greatest supply of information. The historical novels and biographical volumes afford much data. Many a novel has been read to get a few short paragraphs from each about the objects of our search. The stories were good for tired nerves and brain even without the thrill of discovered nuggets for which search was being made. Certain physicians have been mentioned in the preface in anticipation of what they shall do. We hope to be able to mention many others. We do need help. May the publication of these chapters stimulate other portions of our territory to preserve their medical history data.

## Medical Annals of New Mexico

Some New Mexico physician is losing the opportunity of a life time. A medical historian can not be elected. That is not true! A medical society can elect a medical historian and certainly they should do so if they could be fortunate enough in his election. The best way perhaps is to call for volunteers. We should like to hear from a New Mexico physician who wishes to get real pleasure from non-medical reading and at the same time be doing a worthwhile deed for posterity. We will then inaugurate a campaign to have the physicians of the two states do what the Arizona physicians have been asked to do in the above editorial.

## Early Medical Annals of El Paso County

For the editorial which we would have you



read under this caption read the preceding editorial substituting the words 'El Paso' for the words 'New Mexico' and add in the line next to the last after the word states the words 'and El Paso County.'

These are meritorious ambitions. We shall be glad to tell the historians of these two places how we have accomplished what we have.

### INTEGRATION OF THE MEDICAL PROFESSION

The Medical Society of New Jersey has legally incorporated giving the society a legal standing, making it a corporate body like a bank or business corporation whose members cannot be held individually liable for its officials, officers, and managers. Under this process of integration every physician by virtue of his status as a licensed practitioner becomes automatically a member of the corporation. It is empowered to supervise professional activities of all licensed physicians and to administer such discipline as thought desirable. Expulsion from the corporation automatically revokes one's license.

Such an organization is in reality a guild. The one disadvantage is that it has no right to pick and choose its members, taking only those who are morally and professionally qualified. The corporation would take over the licensing of practitioners seeking admission to practice in the state. Since the corporation would assess the members for the necessary funds with which to operate it would mean that the State Medical Association would be a duplicate tax upon the physician or the corporation would supplant the State Medical Association. The assertion has been made that there would be a disadvantage to this program as the average member of the corporation would not have the same high professional, ethical, and scientific standards in the corporation as the average previously had been in the State Medical Association. It has also been stated that the next move would be for the osteopaths, chiropractors, naturopaths, and other cultists to incorporate thus producing a multiplicity of corporations with no centralization.

Had such a corporation been conceived before the advent of the cultists and had it been for the purpose of the control of the healing art rather than the so-called "practice of medi-

cine" which is in reality the same thing but which is now looked upon as two separate propositions there would have been splendid opportunity to have controlled quackery.

In a state which has the Basic Science Law perhaps there is not the same need for such a corporation as in the states without the Basic Science Law.

### THE AMERICAN PUBLIC HEALTH ASSOCIATION CONVENTION

From August 7 to 10th, Milwaukee will be the center for the Public Health Officials of the United States. Along with the American Public Health Convention will meet the Association of Dairy, Food, and Drug Officials, American Association of School Physicians, Association of Women in Public Health, Conference of State Sanitary Engineers, Conference of State Laboratory Directors, Conference of Wisconsin Health Officers, State Registration Executives and State Directors of Public Health Nursing, International Society of Medical Officers of Health, and National Committee of Health Council Executives.

About 400 papers will be presented dealing with such subjects as mental hygiene, diphtheria and scarlet fever immunization, poison in food, public sanitation, treatment of sewage and polluted waterways, public health engineering, planned milk control, laboratory studies of toxins and vaccines, tuberculosis, milk-borne disease, water purification, etc.

It is hoped that members of the medical profession will attend the convention in great numbers.

### ANOTHER CITY ADOPTS THE SAN DIEGO PLAN

Omaha, Nebraska has organized a Central Health Service providing for necessary medical care to the low income group somewhat along the line of the San Diego Plan. The Board of Directors is constituted of three physicians, two dentists, one hospital superintendent, one nurse, and one pharmacist. There is a full-time executive secretary and one field worker with the necessary clerks and head officers.

They have deviated slightly from the San Diego Plan and perhaps to an advantage. At any rate the plan should be carefully studied.

# Twenty-Second Annual Meeting Medical and Surgical Association of the Southwest

NOVEMBER 21, 22, 23, 1935

## PROGRAM

### THURSDAY MORNING, NOVEMBER 21, 1935

**Registration**—8:00 to 9:30 A. M. The Registration Desk, located on the Mezzanine Floor of Hotel Hussmann, will open at 8:00 a. m.

Everyone attending the Conference is required to register. Registration Fee is \$5.00. The official badge, which you receive when you register, admits you to all Conference activities, and should be worn conspicuously at all times.

### FIRST GENERAL ASSEMBLY

Ball Room—9:30 a. m.

Dr. C. R. Swackhamer, First Vice-President, Presiding

**Opening Address:** Dr. C. R. Swackhamer.

**"Peptic Ulcer"**.....Dr. Charles T. Stone, Galveston, Texas

**"Conservative Surgical Treatment versus the Radical Operation  
for Peptic Ulcer"**.....Dr. V. C. Hunt, Los Angeles, California

**"Pediatrics"**.....Dr. Enos Paul Cook, San Jose, California

12:30 p. m.—Luncheon

### Round Table Discussions

Medical.....Dr. Charles T. Stone, Galveston, Texas

**"Complications of Acute Appendicitis"**.....Dr. V. C. Hunt, Los Angeles, Cal.

**"Treatment of Urinary Infections"**.....Dr. Herman C. Bumpus, Jr.,  
Pasadena, California.

**"Discussion of Allergic Toxemia"**.....Dr. Albert Rowe, Oakland, California

**Eye, Ear, Nose and Throat**.....Dr. Isaac H. Jones, Los Angeles, California

### AFTERNOON GENERAL ASSEMBLY

Ball Room—2:00 p. m.

**"Repair of the Pelvic Floor"**.....Dr. James C. Masson, Rochester, Minnesota

**"Hemorrhoids and Their Treatment"**.....Dr. Louis A. Buie, Rochester,  
Minnesota.

**"Urinary Lithiasis"**.....Dr. Herman C. Bumpus, Jr., Pasadena, California

**"The Prescribing of Hearing Aids"**—(Illustrated by stereopticon slides)—  
Dr. Isaac H. Jones, Los Angeles, California.

### EVENING GENERAL ASSEMBLY

Ball Room—8:00 p. m.

**"Allergy—Its Manifestations and Diagnosis"**.....Dr. Albert Rowe, Oakland,  
California.

**"The Cardiovascular System in Relation to Surgery"**.....Dr. V. C. Hunt,  
Los Angeles, California.

**"A Consideration of the Larger Aspects of the Problems of Heart Disease"**  
Dr. Charles T. Stone, Galveston, Texas.

FRIDAY, NOVEMBER 22, 1935

## CLINICS

8:00 a. m.

**"Congestive Heart Failure"**.....Dr. Charles T. Stone, Galveston, Texas

**"Pyelogram Clinic"**.....Dr. H. C. Bumpus, Jr., Pasadena, California

**"Rectal Disease"**.....Dr. L. A. Buie, Rochester, Minnesota

**"Eye, Ear, Nose and Throat"**.....Dr. Isaac H. Jones, Los Angeles, California  
9 a. m.

**"Congenital Malformation of the Vagina"**.....Dr. James C. Masson,  
Rochester, Minnesota.

**"History Taking and the Allergic Patient"**.....Dr. Albert Rowe, Oakland,  
California.



**MORNING GENERAL ASSEMBLY**

Ball Room—10 a. m.

- "Intestinal Obstruction".....Dr. V. C. Hunt, Las Angeles, California  
 "Gastro-Intestinal Allergy".....Dr. Albert Rawe, Oakland, California  
 "Aviation—A Medical Specialty." (Motion pictures "Why and How Cats Turn Over"). Dr. Isaac H. Jones, Las Angeles, California.

**Luncheon—12:30 p. m.****Round Table Discussions**

- "Gynecology".....Dr. James C. Massan, Rochester, Minnesota  
 "Early Diagnosis of Cancer of the Rectum".....Dr. L. A. Buie, Rochester, Minnesota.  
 "Treatment of Malignancy of Urinary Tract".....Dr. H. C. Bumpus, Jr., Pasadena, California.  
 "Eye, Ear, Nose and Throat".....Dr. Isaac H. Jones, Las Angeles, California.  
 Medical.....Dr. Charles T. Stane, Galveston, Texas  
 Pediatrics.....Dr. Enos Paul Cook, San Jose, California

**AFTERNOON GENERAL ASSEMBLY**

Ball Room—2:00 p. m.

- "Modern Treatment of Pernicious Anemia".....Dr. Charles T. Stane, Galveston, Texas.  
 "Anal Infections".....Dr. L. A. Buie, Rochester, Minnesota  
 "What We Should Know About Endometriosis".....Dr. James C. Massan, Rochester, Minnesota.  
 "The Avoidance of Complications Associated with Prostatic Resection"—  
 Dr. Herman C. Bumpus, Jr., Pasadena, California.  
 Pediatrics.....Dr. Enos Paul Cook, San Jose, California

**Friday Evening—Annual Banquet****SATURDAY, NOVEMBER 23, 1935****CLINICS**

8:00 a. m.

- "Bronchial Asthma".....Dr. Albert Rawe, Oakland, California  
 "Eye, Ear, Nose and Throat".....Dr. Isaac H. Jones, Las Angeles, California  
 "Proctology".....Dr. L. A. Buie, Rochester, Minnesota  
 "Pediatrics".....Dr. Enos Paul Cook, San Jose, California

**MORNING GENERAL ASSEMBLY**

Ball Room—9:00 a. m.

- Clinical Pathological Conference.....Dr. Charles T. Stane, Galveston, Texas  
 "Diverticulosis and Diverticulitis of the Colon".....Dr. V. C. Hunt, Los Angeles, California.  
 "Ulcerative Colitis".....Dr. L. A. Buie, Rochester, Minnesota  
 "Treatment of Pollen and Other Inhalant Allergy".....Dr. Albert Rawe, Oakland, California.

**Luncheon—12:30 p. m.**

- Introduction of President-Elect.  
 Closing Address—Dr. James J. Gorman.

**AFTERNOON GENERAL ASSEMBLY**

Ball Room—2:00 p. m.

- General Business Meeting of the Association.  
 Reports of Committees.  
 Election of Officers.  
 Selection of Meeting Place for 1936.

**COMMERCIAL EXHIBITS**

- Meade-Johnson Company, Denver, Colorado  
 Retail Drug Association, El Paso, Texas  
 Border Serum Company, El Paso, Texas  
 Phillip Morris Company, Ltd., New York City  
 General Electric X-ray Corporation, Dallas, Texas  
 J. A. Majors Company, Dallas, Texas  
 McKesson, Kelly & Pollard, El Paso, Texas  
 Southwestern Surgical Supply Company, El Paso, Texas

## SCIENTIFIC EXHIBITS

- (1) A. H. Parmalee and Louis J. Holpern, Rush Medical School and Cook County Hospital: "Diagnosis of Congenital Syphilis."
- (2) Carl H. Green, J. Russell Twiss and R. Franklin Carter, New York Post-Graduate Medical School: "Diagnosis of Gallbladder Disease."
- (3) Moses Swick, Mount Sinai Hospital and Harlem Hospital, New York: "Congenital Anomalies of the Urinary Tract."
- (4) E. Perry McCullagh, W. Kenneth Cuyler and D. Roy McCullagh, Cleveland Clinic Foundation, Cleveland: "Experimental and Clinical Studies of Hormone Assays."
- (5) Samuel Ayres, Jr. and N. P. Anderson, Los Angeles, California: "Focal Infection in Dermatology."
- (6) Louis Schwartz, United States Public Health Service, Washington, D. C.: "Industrial Dermatoses."
- (7) Joseph Buchman, Hospital for Joint Diseases, New York: Healing of Osteomyelitis following Maggot Therapy."
- (8) Jesse G. M. Bullowa Littaner Pneumonia Research Fund of New York University, Harlem Hospital Station, New York: "Management of the Pneumonias—Serum Treatment and Oxygen."
- (9) American Society for the Control of Cancer: Cancer of the Uterus."
- (10) P. Brooks Bland, Arthur First and Leopold Goldstein, Jefferson Medical College, Philadelphia: "Clinical Investigation of Functional Sterility."
- (11) Charles A. Behney & Douglas P. Murphy, Department of Obstetrics and Gynecology, University of Pennsylvania School of Medicine, Philadelphia: "Carcinoma of the Cervix—Its Early Detection."
- (12) Thomas D. Allen and G. W. Nethercut, Illinois Eye and Ear Infirmary, Chicago: "First Aid in Eye Injuries."
- (13) John A. Kolmer, Research Institute of Cutaneous Medicine and Temple University, Philadelphia: "Immunity and Vaccination in Infantile Paralysis."
- (14) Manfred Kremer & Maurice Asher, Newark, N. J.: "Management of Non-Specific Ulcerative Colitis."
- (15) Louis I. Dublin, Metropolitan Life Insurance Co., New York: "The Trend of Cancer—Incidence, Mortality and Curability."
- (16) Lewis M. Hurxthal and Frank N. Allan, Lahey Clinic, Boston: "Clinical Endocrinology."
- (17) Karl John Karnaky, Department of Gynecology and Obstetrics, John Sealy Hospital, Texas University School of Medicine, Galveston and Jefferson Davis Hospital, Houston: "Cause and Treatment of Leukorrhea, with Special Reference to Trichomonas Vaginalis, Monilia Albicans and Cervical Lesions."
- (18) L. E. Prickeman, Mayo Foundation for Medical Education and Research, Rochester, Minn.: "Differential Diagnosis of Asthma."
- (19) David Sashin, Hospital for Joint Diseases, New York: "Relation of Pathologic Change in the Intervertebral Disks to Low Back Pain."
- (20) J. P. Lord, R. D. Shrock and H. P. Johnson, Orthopedic Department, University of Nebraska, Medical College, Omaha: "Bone Tumors."
- (21) Albert Sailand, W. E. Costolow and O. N. Meland, Los Angeles: "Selective Radiologic Treatment of Neoplastic Diseases."
- (22) John Russell Carty, New York Hospital, New York: "Diagnostic Scope of Soft Tissue Radiography."
- (23) Charles Mayer & S. Leon Israel, Mount Sinai Hospital, New York: "Clinical and Experimental Studies on Effects of Huge Doses of the Estrus Inducing Hormones."
- (24) Dr. Leslie Smith, El Paso: "Endothermic Methods in the Treatment of Skin Cancer."



## COMPLYING WITH THE NARCOTIC LAW

The Ohio State Medical Journal recently carried a statement to the effect that many physicians seemed not to understand the importance of observing to the letter the regulations of the Harrison Narcotic Law and therefore might innocently get into serious trouble. One of the shortcomings of the physician is in not filling out the narcotic prescription in conformity with the instructions. Another minor violation which it is claimed that many physicians are guilty of is to write a prescription for a patient for a tube of morphine or other narcotic and instead of giving it to the patient puts it into his medicine case—for legitimate use. This would not seem to be a serious matter but in the trial of a case where a clever lawyer represents the government, a physician might be placed in a most embarrassing situation. As a matter of fact not long since such a case in Cleveland hinged entirely upon the technical question of whether the physician had written a prescription for a narcotic for a patient and appropriated it for his own use. The attorney for the government claimed that this violated two phases of the law: The collection of revenue and the protection of morals. It is true the amount of revenue involved was only one cent but who knows what was the damage to morals.

It is better to endure the red tape than it is to have to sit in court and hear implications of wrong doing flung at you. The Harrison Act has a laudable purpose, however it may have been mismanaged and it is the duty of the physician to comply with the law—to the strict letter of the law.

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## GENERAL TUTHILL RETIRES AS GUARD COMMANDER.

Dr. Alexander M. Tuthill, Commander of the 45th Division of the National Guard of the United States comprised of troops in Colorado, Oklahoma, New Mexico and Arizona, retired September 22, having reached the age limit of 64. General Tuthill has had an active military career as well as an active life as a physician. He came west from the state of New York in 1877 with his parents who settled on the Pacific Coast. He received his medical degree in 1895. In 1898 he went to Morenci to become

assistant physician to the Arizona Copper Mining Company, the latter a Phelps-Dodge Corporation. In 1903 he became Chief Surgeon of the Detroit Copper Mining Company, resigning in the fall of 1919 to enter private practice in Phoenix where he is at the present time.

His first military service was as an enlisted man in the California National Guard Cavalry in 1896, a year after he received his medical degree. He served for two years in this company, resigning when he decided to move to Arizona. In July of 1903 a cavalry troop was organized in Morenci and he was elected Captain, in which capacity he served until August, 1910, when he was commissioned Colonel of Infantry. He commanded the First Arizona Infantry, now the 158th Infantry, and on May 13, 1916, the regiment entered the Federal service on the border. In August of 1917, he was commissioned Brigadier General and assigned to command the 79th Brigade of the 40th Division. The brigade consisted of the 157th Colorado Infantry, 158th Arizona Infantry, and a machine battalion of the First New Mexico Infantry. He remained in command of the 79th until his return from France, being discharged April 11, 1919. He was recommissioned by the War Department December 28, 1928, and assigned to command the 89th Brigade, composed of the 157th and 158th, his former two regiments. In August, 1933, he was promoted from Brigadier General to Major General and assigned to command the 45th Division which has a peace-time strength of 8,000 men and which in war-time emergency may be increased to 25,000.

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## PHYSICIANS' EQUITY ASSOCIATION OF AMERICA INCORPORATED

This corporation is a New York Institution with elaborate offices at 745 Fifth Avenue. The aims of the organization are stated to be minimizing of free clinic service, assurance of reasonable compensation to the physicians, legal regulation of abuses of the practice of the healing art, removing from the profession all unqualified healers, the creation of a clearer economic situation between the patient and the doctor, etc. The corporation is at the present time giving benefits and in one way or another attempting to raise a considerable fund to further their objects.

## THE SUB-STANDARD PRACTITIONERS MAKE AN EFFORT TO BECOME DOCTORS OF MEDICINE

From the presidential address of C. E. K. Vidal, M. D., are taken portions of two short paragraphs which are nicely phrased:

"Possessing many of the elements of drama was the effort of the osteopaths to pass, at the recent session of the legislature, a revolutionray bill. Its purpose was to confer on the members of their cult all the rights and privileges of the medical profession. With a well-organized political machine they succeeded in bringing it to the House with a favorable committee report. It was decisively defeated in committee of the whole. On our side we were caught napping. It was a surprise offensive—a clean break-through. A counter-attack was hurriedly organized and successfully conducted. It was equally a pleasant surprise to see how an emergency could unite the profession and note how large a majority of the people of the state appreciated our position and rallied to our support. . . . What lessons can be learned from the episode? The necessity of unity. A profession rocked by discord and upset by dissension is always vulnerable to attack. Why are only 73 per cent of the medical men of the state members of the Association? Why not 95 per cent? Our esteemed past president, in his address last summer, stated that we have always leaned over backwards to be fair and unprejudiced in dealing with the cults. He was wholly and unqualifiedly right. To one who sat at the committee hearings and heard the talk of a quarrel between two schools of medicine, the conviction arose that we had been too fair. The public should know that there is but one school of medicine, evolved through the centuries and based and builded on the unshakeable foundation of scientific truth. In rearing it, these cultists, these heretics, have mixed no concrete for its footings, have mortised no beams into its superstructure. Yet they wish to enter by the back door and use the completed building for their own."

## SOCIALIZED MEDICINE IN EUROPE

Dr. Louis J. Gariepy of Detroit, Michigan, made a trip through England, Belgium, Switzerland, Germany, and France with the idea of investigating the system of Social Medicine now in use. He talked to patients and doctors in great numbers. A careful reading of his article<sup>1</sup> is well worth while. He says the patients generally are pleased with their treatment under the various systems. The doctors also as a general rule are well pleased.

His almost universal finding that the patients pass through the doctor's office at the average rate of about one per minute shows conclusively that something is wrong. The doctors are not giving adequate time to any one case to give it careful examination.

Under the system practised in France, Germany and England the medical standards are

much inferior to those of the United States. The doctor finally concludes that the Pino plan as used in Detroit, similar to the San Diego plan, offers the best plan for America.

1. Mich. State Med. Jour. 34: 546. Sept. 1935.

## A DEFINITE MEDICAL ECONOMICS PROGRAM FOR EVERY MEDICAL ORGANIZATION

In next issue we publish an outline of a definite medical economics program which is planned and being followed by the Medical Society of the District of Columbia. The El Paso County Medical Society of our constituency also has a broad comprehensive program. We hope to have full details in the near future of this program. It would seem that the exigency of the medical economics question should make every County and State Medical Association have a live wire working medical economics committee and every member on his toes assisting to work out a program for giving medical care of the best type not only to the low income groups but to the indigent as well. Included in the program it seems to us should be a plan for telling the public the truth about the substandard—the back door—practitioners of the healing art.

## THE ATTORNEY GENERAL'S OPINION REGARDING BASIC SCIENCE LAW AND NATUROPATHS

"It is the opinion of this office that the Naturopath physicians must take the examination as provided for in the Basic Science Law. This opinion is based upon the fact that the Basic Science Law was a referred measure and can not be changed by a legislative act."

## AN ERROR IN DR. SCHOFIELD'S DISCUSSION OF DR. FLINN'S PAPER

What he said in place of that which was printed from the reporter's copy in Southwestern Medicine last month on page 305 is as follows:

"I have been interested in endeavoring to raise the calcium content of the blood by use of vitamin D. At Boulder Dam we have used gallons of irradiated oils in the treatment of healing fractures. The level of the blood calcium content may have been raised, but we have not found healing and calcification to have been made more effective by this medication."



## PUBLIC HEALTH NOTES

J. ROSSLYN EARP, Dr. P. H.  
Director New Mexico State Bureau of  
Public Health.

### New Books

The summer publishing season has been generous to public health. First in importance of the new books must be reckoned the text book on **Public Health Administration** from Harvard<sup>1</sup>. This is in no sense a rival to Rosenau's text in preventive medicine. The latter deals with methods of preventing disease whereas Doctor Smillie's new work deals exclusively with the organization of the forces of prevention. Beginning with the basic public health functions of government the author proceeds to show what part each division of our American governmental system—federal, state and local—may properly play in a unified coordinated system of health promotion and protection. We find ourselves heartily in agreement with the recommendation of Professor Smillie that the trend should be towards more adequate and self-sufficient local health departments. The word chosen to describe the function of the state health department is leadership and it is the right word. Since the book was written before the passage of the Social Security Act the more intimate relationship between federal and state health departments pressaged therein is not mentioned. This is perhaps fortunate for no safe evaluation of the results of that act is possible at this time. It has still to be shown that the national congress may be relied upon to make regular appropriations in support of the new plans. And the emphasis here is upon the word regular. Spasmodic generosity from Washington may be more disorganizing than no subsidy at all.

It is to be hoped that many general practitioners will read Doctor Smillie's book for its intrinsic interest as well as to help them in understanding what their colleagues in the special field of public health are trying to do. Certainly no public health official can afford not to own a copy. Health officers will find a valuable supplement in a volume of **Record Forms** just published by the Commonwealth Fund<sup>2</sup>. It has been prepared by two members of their staff who have had the advantage of cooperation with the committee on administrative practice of the American Public Health Association. The book is published at less than cost and is a rare bargain.

From the School of Hygiene of the University of London comes a scholarly **Study in Epidemiology**<sup>3</sup>. The president of the Royal Statistical Society spares his readers from all difficult mathematical abstractions and yet succeeds very well in conserving the mathematical romance of a quantitative study of the phenomena of disease. And there are practical lessons for our profession; for example the demonstration on page 209 that it may be futile or worse to immunize school children against diphtheria if their younger brothers and sisters in the home are left unprotected.

Any of these books may be borrowed by readers of Southwestern Medicine from the library of the New Mexico Bureau of Public Health.

1. Smillie, Wilson G. **Public Health Administration in the United States**. New York: The Macmillan Company, 1935. pp. 458. Price \$3.50.

2. Walker, W. F. and Randolph, C. R. **Recording of Local Health Work**. New York: The Commonwealth Fund. 1935. pp. 275. Price \$2.50.

3. Greenwood, M. **Epidemics and Crowd-Diseases**. London and New York: The Macmillan Company. 1935. pp. 409. Price \$5.50.

## EL PASO COUNTY MEDICAL SOCIETY

Meeting was called to order by Dr. B. F. Stevens 7:30 P.M. Sept. 9, 1935, Hotel Dieu Nurses Home. Twenty-two members were present. Minutes of the previous meeting were read and approved.

Dr. Frank Goodwin read paper entitled "Intra-capsular fractures of hip" and presented two patients, who had been successfully treated. Discussed by Drs. George Turner and B. F. Stevens.

Applications for membership of Dr. George Arnold Stevens and Dr. W. Adams were read. Dr. Stevens was accepted through transfer. Dr. Adams was referred to the Board of Censors.

Dr. Rennick read the names and amounts received by the doctors from the F. E. R. A. work done during May, June and July according to previous resolution. Dr. Gallagher moved to dispense with the reading of the above list. This was passed.

An informal report was given by Drs. Homan, Rennick and Egbert on the present status of the Central Medical Bureau, with discussion by most of the members present.

Meeting adjourned.

L. O. DUTTON, Sec.

### NEWS ITEMS

Dr. J. M. Sartin resigned from the Arizona State Hospital to take post graduate work at Tulane. Dr. Sartin was associated with the State Hospital for 15 months and formerly was House Physician at the Good Samaritan Hospital.

Dr. C. B. Warrenburg has recently located in Phoenix in the Grunow Memorial Clinic Building. His work is limited to obstetrics.

Dr. F. L. Reese of Phoenix, Arizona, addressed the Phoenix Lions Club September 26 most learnedly upon the Constitution of the United States.

Dr. David M. Davis of Phoenix, President of the Medical and Surgical Assn. of the Southwest, has been called to Philadelphia as professor of genito-urinary surgery in the Jefferson Medical College. Before coming to Phoenix five years ago Dr. Davis had been a member of the faculty of the Johns Hopkins School for fourteen years and for a short time professor of urological surgery at the University of Rochester, Rochester, New York. Dr. Davis is a graduate of Princeton, 1907, and Johns Hopkins Medical School, 1911. While in Phoenix he has been active in the various medical organizations, the Phoenix Chamber of Commerce and in the Kiwanis Club.

Dr. George A. Hays, formerly with the Missouri State Board of Health, is now connected with the Arizona State Board of Health as the epidemiologist replacing Dr. Hugh S. Stanton who resigned. Dr. Hays served for five years as health officer at Texarkana and was also health officer at Pine Bluff, Arkansas. He is a graduate of the University of Arkansas and of Columbia University.

Dr. Hugh F. Stanton, former epidemiologist of Arizona, has taken the post of resident physician of the Wickenburg General Hospital, where he is engaged in private practice.

Dr. A. Carl Armbruster and wife, son of Dr. and Mrs. A. C. Armbruster of Phoenix, have been spending the summer in Phoenix and at the last report he has not decided as to where he will locate but probably in the San Francisco Bay district.

Dr. Lawrence von Pohle addressed the Rotary Club of Chandler at a recent meeting, describing his visits to the Eastern Clinics and hospitals this summer. He has been elected president of the Chandler Chamber of Commerce.

Dr. and Mrs. Will Wilkinson of Phoenix, Arizona, vacationed in San Diego.

Dr. and Mrs. Thomas W. Woodman of Phoenix spent September on the Coast.

Dr. S. D. Little of Phoenix vacationed in Tacoma, Washington, during September.

Dr. W. B. Watts of Miami, Arizona spent a few days in Phoenix during the early part of September.

Merial Watkins, daughter of Dr. and Mrs. Warner W. Watkins, was married August 11 to Kenneth E. Grimm of Phoenix in the First Baptist Church before a large group of admiring friends. Mr. and Mrs. Grimm have gone to Tucson where Mr. Grimm will continue his studies at the University of Arizona.

Dr. A. N. Crain, Director of the Maricopa County Public Health Unit of Arizona, and family are spending a short vacation in Santa Ana, California during September.

Dr. Nelson D. Brayton, Secretary of the Gila County Medical Society, Globe, Arizona, will hold its first meeting of the year Tuesday, October first, with President-elect Jess D. Hamer as guest speaker.

Dr. Joseph M. Greer of Phoenix is to head the Program committee for the dedication of the Phoenix Sky Harbor, a recently acquired airport, on Armistice Day, November 11.

Dr. and Mrs. John E. Bacon of Miami, Arizona spent a few days in Phoenix during September where they had come to send their son on his way to Stanford where he is a student.

Dr. and Mrs. M. I. Leff of Glendale, Arizona spent their vacation at the Coast. Doctor Leff made a tour to British Columbia and back.

Dr. and Mrs. M. Matanovich of Phoenix vacationed in California during September.

Dr. and Mrs. C. R. K. Swetnam of Phoenix announced the marriage of their daughter, Margaret Keith Swetnam to Russell Raymond Raney of Auburn, New York.

Dr. W. Cnapman of Los Mochis, Mexico, spent several days in Nogales recently visiting friends.

Dr. and Mrs. J. H. Woodard, of Ruby, are vacationing in California.

Dr. E. C. Houle, of Nogales, has recently returned from California, where he spent a 10 day vacation.

Dr. Charles S. Smith of Nogales, after an enforced absence from his office due to ill health, has re-opened his offices. Dr. Smith's practice is limited to eye, ear, nose and throat.

Dr. Zenas Noon of Nogales was recently appointed Acting Surgeon, United States Public Health Service, and is in charge of the office in Nogales.

Dr. Chaney is now in charge of the medical work at CCC F-63-A camp, located near Nogales.

Dr. A. L. Gustetter of Nogales spent several days in California recently. Returning home he was accompanied by Mrs. Gustetter, who has been vacationing at Long Beach.

Miss Lydia Potthoff, school nurse, of Santa Cruz County, has returned from a vacation spent at St. Paul, Minn.

Dr. George Truman of Phoenix addressed the Physicians of the Indian Service meeting at the Phoenix Indian School October 12 on Public Health.

Dr. Orville Harry Brown addressed the Arizona Branch of the United States Indian Service Medical Society at the Phoenix Indian School Saturday afternoon October 12 on the subject of Treatment of Pneumonia with Intravenous Injections of Quinine.

Dr. A. J. McIntyre of Phoenix was called to San Diego recently to confer with the committee on arrangements for the President's annual birthday ball in Arizona where further plans will be promulgated for control of Infantile Paralysis.

Dr. E. A. Metzger is removing from Clayton, New Mexico, to Raton, in the same state where he is to be associated with Dr. M. F. Smith.

Dr. Z. A. d'Amours is moving into the office

which will be vacated by Dr. Metzger in Clayton, N. M.

Dr. Lewis Baldwin of the Desert Sanatorium in Tucson, Arizona, was in Phoenix during September on social business, at which time many of his Phoenix conferees had an opportunity to greet him.

## PROCEEDINGS OF THE NEW MEXICO MEDICAL SOCIETY

### 53rd Annual Meeting Albuquerque, N.M., May 23-25, 1935.

(All business and scientific sessions were held in the Indian Room of the Franciscan Hotel.)

#### (Continued from September issue) ALTERNATE DELEGATE TO AMERICAN MEDICAL ASSOCIATION:

Nomination of Dr. W. R. Lovelace (Albuquerque) was offered by Dr. Carl Mulky (Albuquerque), seconded by Dr. C. A. Miller (Las Cruces). Elected.

#### BOARD OF MANAGERS, SOUTHWESTERN MEDICINE:

Nomination of Dr. C. H. Gellenthien (Valmora) was made by Dr. W. R. Lovelace (Albuquerque).

Nomination of Dr. J. R. Earp (Santa Fe) was offered by Dr. Carl Mulky (Albuquerque). Both were elected.

#### MEETING PLACE 1935:

Dr. R. O. Brown (Santa Fe) stated: "Santa Fe will be delighted to have the meeting held there next year. We think we have a nice place to hold meetings. It has been three years since you have been to Santa Fe and we will try to give you a good time and have a good meeting."

Dr. H. A. Miller (Clovis): "We would like to invite you to Clovis. We have had excellent rains lately and expect to have the biggest corn crop this year we have ever had. We extend to you a cordial invitation to meet at Clovis next year."

Dr. R. L. Bradley (Roswell): "I know that Dr. Culpepper wants us to come to Carlsbad next year and that he especially asked Dr. Miller to nominate Carlsbad. Here he comes now, however, and he can speak for himself."

Dr. M. B. Culpepper (Carlsbad): "I understand a partial agreement was entered into last year at the meeting at Las Vegas whereby Las Cruces was to have the first claim on the 1936 meeting. If Dr. Gerber has any claim on the meeting for next year, I would certainly not make a request for it or proffer an invitation from Carlsbad, and therefore wish first to hear what the Las Cruces men have to say in regard to the matter."

Dr. C. A. Miller (Las Cruces): "While we would be delighted to entertain you at Las Cruces, as we are in the south end of the State and very much isolated, we could probably not get more than 50 members to attend, if that many, and we believe the meetings should be held at some more central point where there would be a larger attendance."

Dr. M. B. Culpepper (Carlsbad): "Such being the case, I want to assure you that Carlsbad wants the meeting held there next year. The different interests at Carlsbad, including the Doctors, have wired me to offer this invitation and I am filing with the Secretary, Dr. Cohenour, a list of telegrams including one each from the Mayor, the Carlsbad Commercial Club, the Rotary Club, the City Council, the Lions' Club and the Hotels, asking me to extend this invitation.

Motion by Dr. R. L. Butler (Clovis) that the So-



ciety hold its annual meeting in 1936 at Carlsbad, N. M., was seconded by Dr. W. R. Lovelace (Albuquerque) and carried.

Dr. M. B. Culpepper (Carlsbad): "I thank you very much for your indulgence. We like to entertain and we are doing lots of entertaining these days, as quite a number of different organizations have met recently in Carlsbad. We are becoming quite a convention city. Probably most of you have already visited the Cavern, but we have other very interesting places to see also, with plenty of good hotel facilities, entertainment qualifications and one of the best bathing beaches in the State. I am sure you will all have a good time and a good meeting. I wish to express my gratification for the honor of being selected as your next President, and while I feel you have made an error in the selection, yet with good health and with the cooperation of those who manage the affairs of the Society, I will do the best I can.

#### OTHER BUSINESS

The Secretary's report was submitted and read by the Secretary, Dr. L. B. Cohenour. No objection arising the report was approved and accepted as read.

**LEGISLATIVE COMMITTEE:** Dr. R. O. Brown (Santa Fe) stated that he had no written report for the Legislative Committee, but that in accordance with instructions he engaged Mr. Carl Gilbert to follow the trend of events in the Legislature. Mr. Gilbert found that a Bill had been introduced to license naturopaths in the State, whereupon he secured a hearing before the committee to which the bill was committed in the House, at which practically all the members of the Santa Fe Society were present. The hearing lasted for an hour and a half or two hours. Following that the bill was reported unfavorably to the House. It was called out of committee, however, in the last days of the session and passed by the House, but died in committee in the Senate. Apparently in the House the bill was passed under some sort of agreement, though trades are unethical, and when it reached the Senate the naturopaths did not try to force it. The attitude we took during the committee hearing was passage of the naturopath bill provided we could include in it a basic science law for all physicians. While the bill was passed in the House without such amendment, the amendment would have been added in the Senate and probably when the naturopaths found this out they allowed the bill to drop. There was some talk later about the medical profession and the cults getting together and passing either a basic science law or a naturopath bill, but nothing came of it and the matter was dropped. If things are bright next year, we may be able to get a basic science law through if the members of the House of Delegates concur in our opinion and we think it would be a good idea to retain Mr. Gilbert as legislative advisor or agent. It is much easier to take care of these matters when someone who knows the ropes is on the job. Mr. Gilbert's bill, \$75.00, was very moderate. If a special session is called, we may be able to get somewhere with a basic science bill.

Dr. R. L. Bradley (Roswell): "I do not believe we should compromise with the cults, but should just try to put our own Bill through. If we cannot get a basic science act through without compromising with a cult, we do not want it. The thing for us to do is to get busy and get our own Bill through."

Dr. R. O. Brown (Santa Fe): "I did not mean to leave the idea with you that we were compromising in any way. We did not agree to the passing of the Naturopath Bill first and then to introduce another Bill afterward. An amendment was to be added to the Naturopath Bill and the people who were licensed under it would all have to pass a ba-

sic science examination, which they would not be able to do."

Motion by Dr. H. A. Ingalls (Roswell), seconded by Dr. C. A. Miller (Las Cruces), that the Legislative Committee be continued and that Dr. Brown be instructed to again employ Attorney Gilbert, was carried.

Dr. R. O. Brown (Santa Fe): "Mr. Gilbert wanted me to mention that when things come up in which the Doctors are interested, if they will send him telegrams, it will help matters."

#### REGISTRATION FEE FOR PHYSICIANS:

Dr. R. O. Brown (Santa Fe): "I want to say a word in regard to the matter of a registration fee for physicians in the State as a means for raising funds in the prosecution of offenders against a registration law. At present the Board of Medical Examiners have no funds available to pay for clerical expense in keeping records, etc. The Secretary of the Board suggested, as have others before him, that one method to raise funds would be to get a law enacted requiring a license fee from all physicians in the State, say something like from two to four dollars a year for the first two or three years until a fund is raised and then reduced to \$1 per year. If the Medical Society backs such a measure, the Legislature will undoubtedly put it through. It seems like a special tax on the Doctors, but on the other hand it will serve our purpose to some extent in fighting the illegal practitioners."

Dr. R. L. Bradley (Roswell) suggested that the dues be raised one or two dollars in order to collect a fund.

Dr. Carl Mulky (Albuquerque) asked how much money there was in the treasury and if a sum could not be donated from it for the purpose.

Dr. L. B. Cohenour (Albuquerque) replied that at present there is about \$754 in the treasury.

Dr. C. A. Miller (Las Cruces) remarked that the great trouble with arrangements of that kind is that there will be other men, who are not members of the Society, and who will not be paying anything, and yet receive as much benefit as those who do, whereas if there was a State law compelling registration, every one would have to pay alike.

Dr. R. L. Bradley (Roswell) stated that it was up to the District Attorneys to prosecute illegal practitioners but they were not willing to do so as the laws are not very strong and should be strengthened.

Dr. R. O. Brown (Santa Fe) remarked that Mr. Gilbert did recommend that some sort of Bill be introduced in the interest of medicine and surgery, giving adequate definition of medicine and surgery, as under the present laws there is no means of controlling naturopaths, chiropractors and the like, as the definition is inadequate.

Dr. W. R. Lovelace (Albuquerque) asked Dr. G. T. Vinyard, of Amarillo, Texas, in regard to methods used in Texas.

Dr. G. T. Vinyard (Amarillo, Texas): "Up until about three years ago, the expenses of the Medical Examiners in Texas were taken care of by donations from a few members of the Association, but there were never enough funds available to carry along this work as it should have been. Then we managed to get before the Legislature a bill requiring all physicians to register, carrying a registration fee of two dollars, and if registration is not accomplished by a certain time, the physician is violating the law if he continues to practice, and can be prosecuted. Now we have sufficient money to pay the expenses of the Board of Examiners and run the "chiro" pretty hard. There should, however, be a clause in your bill to the effect that doctors who live outside the State and who are registered to practice within the State, shall pay a higher registration fee than that required of physicians liv-

ing within the State, as it would not be fair if I, living in Texas, and not paying dues in New Mexico, should come over in New Mexico and treat cases, and get the same protection as Dr. Lovelace, who is paying his dues.

Motion by Dr. W. R. Lovelace (Albuquerque) that the Legislative Committee be instructed to have a bill drafted, to be passed at the next session, incorporating a two dollar license fee for every person practicing medicine in the State, it was seconded by Dr. C. A. Miller (Las Cruces).

Dr. J. W. Stofer (Gallup) stated that most of the states have such a law. Some require one dollar license fee, others two dollars, with 10 dollar registration fees for doctors living outside the State who are licensed to practice in the State. It would be a good thing and would create a fund for the Board of Examiners to work with.

Dr. C. W. Gerber (Las Cruces): A voluntary contribution will not get us anywhere. Practically every state has seen the same necessity that we are seeing here today. Other boards of examiners have been in the same condition that ours has been. All the examiners can do is to examine papers. The law charges them with the regulation of legal practice of medicine within the State, but they have no funds for investigations. We have hosts of professional abortionists in the State and also many hopheads who should be prosecuted. I know them and you know them, but we have no evidence for the Court, and evidence can only be secured by an investigator, for which it takes funds. So I think if we can raise funds by some means, and this annual registration fee seems to be the best way in which it can be done, the board of examiners will be able to investigate and prosecute these illegal practitioners."

Dr. G. T. Colvard (Deming) remarked that it was the duty of the board of medical examiners to see that the registered physicians are protected from illegal practitioners.

Dr. W. R. Lovelace (Albuquerque) stated that he was on the board of medical examiners for about 18 years and during that time many complaints came before the board, but in answering letters about them, it could only be stated that it was regretted funds were not available for the prosecution of such practitioners. "It is high time," Dr. Lovelace said, "this Society is taking definite action to protect us. It is our own fault that there are so many "chiro" and other quacks, as we have not taken the interest we should have to protect ourselves, and indeed cannot take any action unless we have the money."

Dr. G. T. Colvard (Deming) signified his approval of the motion pending but suggested that it be amended to state "recommending passage" instead of "to be passed."

Dr. L. B. Cohenour (Albuquerque) suggested that a clause be inserted setting registration fee for non-resident physicians at 10 dollars.

Dr. R. L. Butler (Clovis) asked if an amendment would be accepted providing that the bill to be drawn by the legislative committee must be approved by the council before being submitted to the Legislature.

Dr. W. R. Lovelace (Albuquerque) stated that such amendments met with his approval, and motion was thereupon passed as follows: "The Legislative Committee be instructed to have a bill drafted, to be approved by the council, and recommended for passage at the next session of the Legislature, incorporating therein a two dollar annual registration fee for every practitioner of medicine in the State. For non-residents, fee should be 10 dollars."

Dr. R. O. Brown (Santa Fe): "We heard what Mrs. Sanger had to say in regard to the matter of birth control, and as many organizations have al-

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ready adopted resolutions of a similar nature, it seems to me we might do likewise, and, therefore, I move the adoption of the following resolution:

"WHEREAS, The medical profession and the public have the right to look to the American Medical Association to assume a role of leadership in both the scientific and legal phases of all branches of medical practice; and

WHEREAS, The whole subject of birth control is seriously in need of scientific study and investigation; be it

RESOLVED, That The New Mexico State Medical Society request the House of Delegates of the American Medical Association to initiate a comprehensive program with respect to the study of birth control, instructing its appropriate agencies to undertake the necessary scientific study; and be it

FURTHER RESOLVED, That our Delegate to the House of Delegates be instructed to urge and vote for the adoption of such a program of investigation; and that the Secretary be hereby instructed to forward a copy of these resolutions to the Secretary of the American Medical Association."

Motion by Dr. Carl Mulky (Albuquerque), that such Resolution be adopted, was seconded by Dr. H. A. Ingalls (Roswell) and carried.

(Concluded in November issue)

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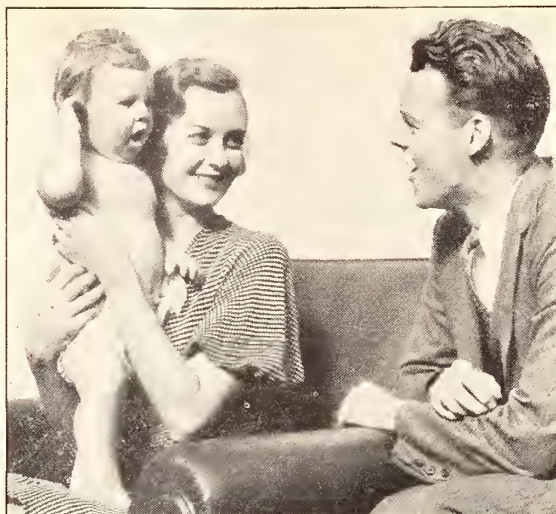
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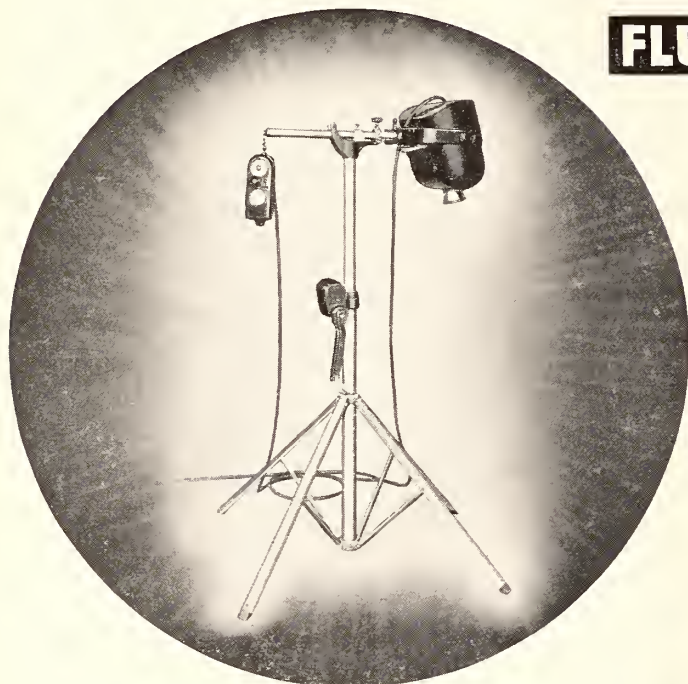
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# SOUTHWESTERN MEDICINE

(REGISTERED U. S. PATENT OFFICE)

VOL. XIX

NOVEMBER, 1935

No. 11

OFFICIAL ORGAN  
of the  
NEW MEXICO MEDICAL SOCIETY  
ARIZONA STATE MEDICAL ASSOCIATION  
EL PASO COUNTY (TEXAS) MEDICAL SOCIETY  
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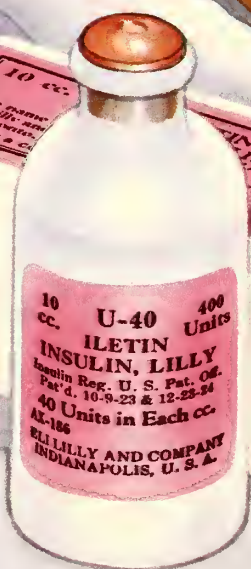
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● During the first few months of life, breast milk or modified cow's milk, properly supplemented, is the major article of food in the infant dietary. In later infancy and early childhood, however, it is desirable that other foods be included to supply the increasing demand for food essentials in which the milk diet is inherently deficient.

Modern practices in infant nutrition, while similar in broad aspect, may differ in detail. The first addition to the supplement milk diet is usually that of cereals or cereal broths. Later, strained vegetables and fruits, valued for their contributions of iron and cellulose materials, are included. Finally, other foods, such as egg yolk, broths and soups, are added to the dietary at the discretion of the physician.

Especially designed and well suited for use in this phase of infant nutrition are the canned strained foods. Manufacturers of such products are mindful of the fact that the highest possible standards as to quality and food values must be maintained—that endorsement or acceptance of these products by the profession can be obtained only after actual trial. Consequently, precautions are taken in the commercial procedures to retain in as high degree as possible the quality characteristics and nutritive values of the raw products used.

Only selected materials at the proper de-

gree of maturity enter into the manufacture of commercially strained foods. Within a few hours of harvesting, the raw products are subjected to preparatory operations such as cleansing, peeling or trimming. After preliminary heat treatments, the materials are strained through screens whose interstices are measured in the thousandths of an inch; filled into cans and the cans sealed, heat processed and cooled.

In the canning procedure a number of factors are favorable to the retention of certain fugitive food values. Among these may be included the use of selected, properly matured raw stock; the rapid handling of the harvested crop; the use of steam or a limited amount of water in preliminary cooking operations; the exclusion of air during pre-cooking and straining; the straining of the foods in the liquid in which they were cooked; and the heat processing in sealed containers from which most of the atmospheric oxygen has been removed.

Research has demonstrated that these factors operate effectively in the retention in high degree of food values in the canned strained products (1). Consequently, commercially strained foods or food combinations—readily available on every market—deserve a high place among foods adapted to infant and child feeding, not only from the standpoints of economy and convenience, but by virtue of their nutritive values as well.

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(1) Journal Nutrition 7, 429 (1934)  
Journal American Dietetic Association 9, 295 (1933)  
Journal Pediatrics 6, 749 (1932)

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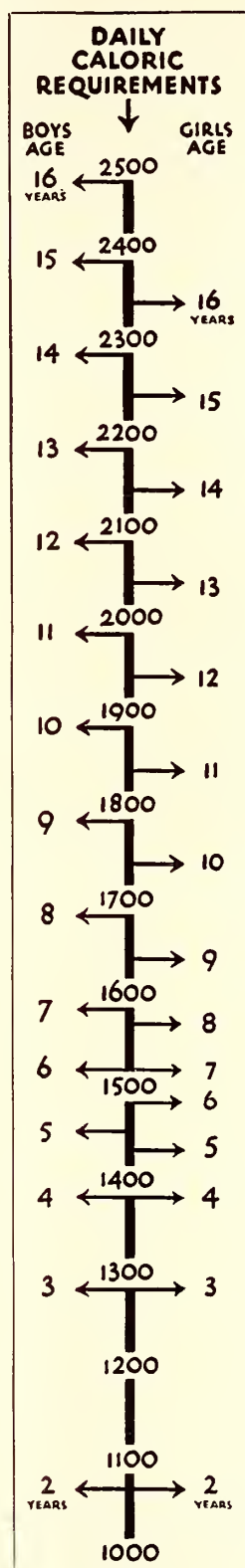
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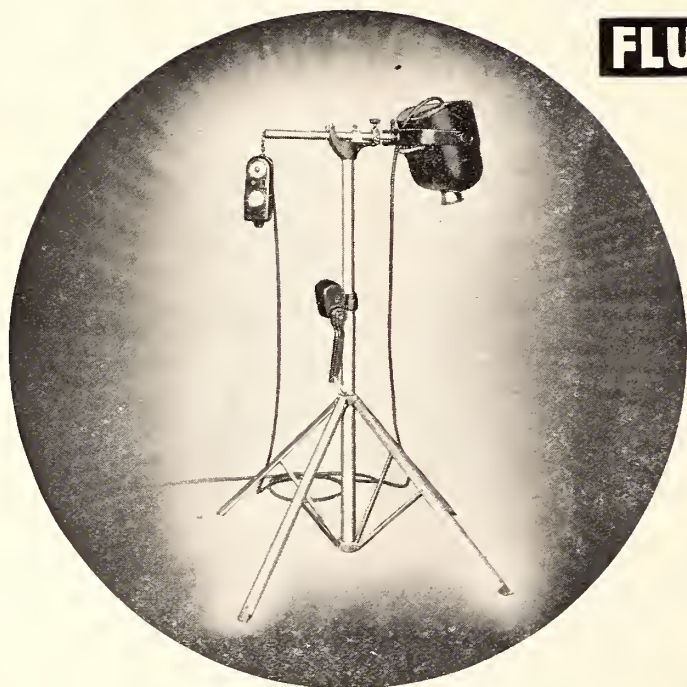
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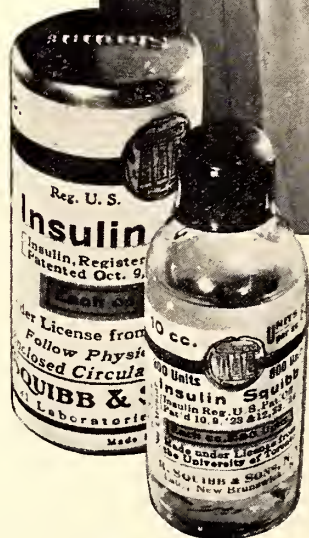
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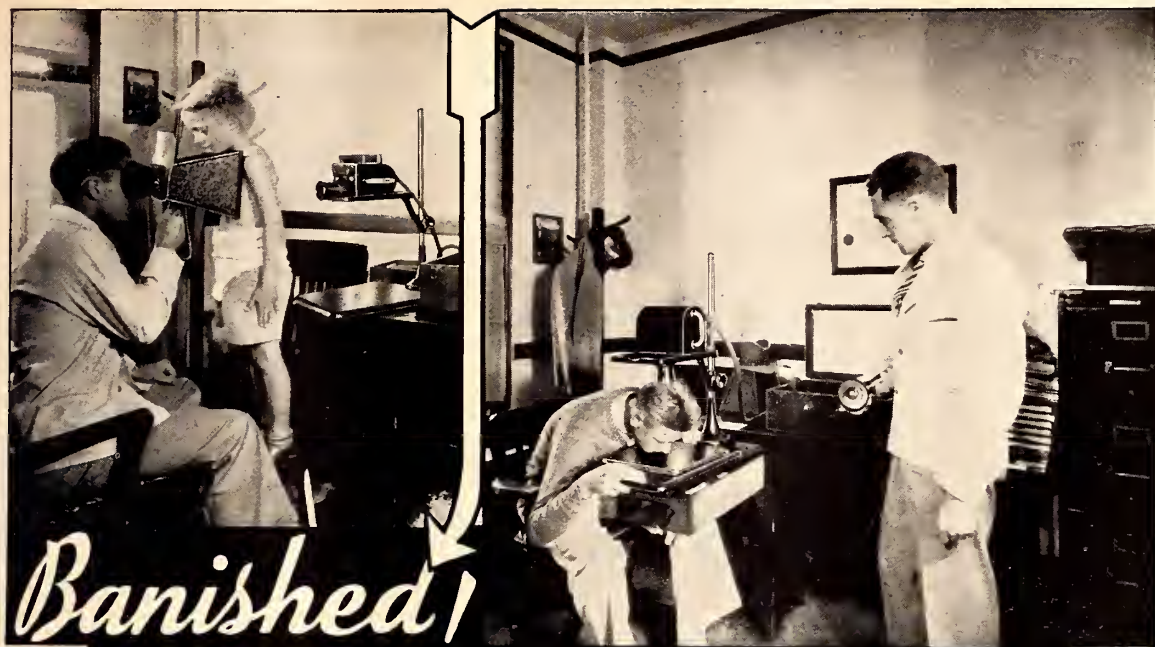
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VOL. XIX.

NOVEMBER, 1935

No. 11

ANNUAL SUBSCRIPTION \$2

SINGLE COPIES 25 CENTS

Entered at the Postoffice at Phoenix, Arizona, as second class matter.

"Acceptance for mailing at special rate of postage provided for in section 1103, Act of October 3, 1917, authorized March 1, 1931."

## SURGICAL TREATMENT IN PULMONARY TUBERCULOSIS

DR. FELIX P. MILLER

El Paso, Texas

(Read before the New Mexico State Medical Society, at its Fifty-third Annual Session, held at Albuquerque, N.M., May 23 to 25, 1935.)

Induced pneumothorax as a therapeutic measure in the treatment of pulmonary tuberculosis continues to hold its well deserved place.

Where pathological conditions, such as adhesions, prevent the application of artificial pneumothorax, other surgical methods are available that will rest the diseased lung.

The most frequently used operations are phrenicectomy, and thoracoplasty. Intrapleural pneumolysis either by open or closed method by the division of adhesions may enable artificial pneumothorax to be more satisfactorily used in collapsing the apex.

Extrapleural pneumolysis with the insertion of paraffin or muscle flaps may be used in the obliteration of apical cavities (apicolosis).

Multiple intercostal neurotomy (Alexander) has been used to paralyze the intercostal muscles, thereby limiting motion and providing a certain amount of rest to the diseased lung.

Phrenicectomy is a safe minor operation. By its use there is slight reduction of the thoracic cavity and a limitation of the movement of the lung; it also has a favorable action on apical lesions with a retractile tendency from pleural adhesions. It is of limited value in the chronic caseous, fibro-caseous, and ulcerative lesions. It is rarely of benefit in acute progressive exudative lesions.

Thoracoplasty is most useful in the essentially unilateral, inactive fibrous, fibrocaseous, and ulcerative pulmonary tuberculosis, with adhesions, cavitation and hemorrhage.

The patient should be in fairly good general

condition. It is seldom advised in patients under 15 or over 40 years of age. It is usually contraindicated during acute exacerbations and where there are severe complications of the kidney and intestines.

Thoracoplasty should not be attempted in terminal cases. Exudative cases will have a high mortality from this operation.

Obliteration of the cavity is essential for the cure of empyema. Thoracoplasty may be required to obliterate a residual empyema cavity with rigid walls.

The operation of gradual, paravertebral thoracoplasty, is the standard procedure for permanent collapse of the lung. It is performed under basal-local or basal-gas-oxygen-ethylene anaesthesia. In certain cases only an apical thoracoplasty is indicated. Others will require two or three stage operations. Occasionally it may be necessary to collapse the entire chest wall by lateral and anterior resection of the ribs, in graded operations of from four to 12 procedures. The number of stages required will be determined according to patient's resistance and lesions requiring collapse.

It was formerly considered that a complete thoracoplasty was required in most cases of pulmonary tuberculosis that required surgical collapse. This opinion was based upon the theory that there was likelihood of an extension of the tuberculous process below the demonstrable lesion if only a partial or limited rib resection was done. However, there is now sufficient evidence to contradict this theory. In my opinion, a limited resection of ribs at the apex, sufficient to collapse the cavities, is adequate to produce an arrest of the disease, and allow the base to function without danger of new involvement. This type of operation does not subject the patient, a substandard risk, to as many surgical operations. The danger is diminished, and the economic loss is not so great.

How can you estimate the number of ribs that must be removed in order to collapse the

lesion? My estimate is based upon an examination of the Roentgen ray plate. By counting the ribs from the first downward until you reach the lower border of the lesion you may determine the proper number of ribs to be removed. Disregard the rib markings on the anterior surface.

**CONCLUSIONS:** Induced pneumothorax in the treatment of tuberculosis continues to hold its well deserved place.

When pathological conditions, such as adhesions interfere with artificial pneumothorax surgery offers many accessory operations for supplementing collapse therapy.

Graduated paravertebral thoracoplasty in one or more stages is of distinct advantage in arresting essentially unilateral pulmonary tuberculosis.

Apical thoracoplasty is indicated in chronic upper lobe lesions where the base is free of disease.

Surgery of the chest has tremendously advanced, and is becoming an important chapter in the progress of medical science. It is assisting in the prevention of the dissemination of pulmonary tuberculosis by promoting arrest of the disease.

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## SEVERING ADHESIONS IN ARTIFICIAL PNEUMOTHORAX

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SAM R. KING, M. D.

and

H. A. PATTERSON, M. D.

U. S. Marine Hospital, Fort Stanton, N.M.

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Rest is generally the most important factor in the treatment of pulmonary tuberculosis. In a large number of cases more intensive rest of the diseased lung is desired than is offered by routine treatment and may be obtained by one or more of the surgical procedures now in use, such as, artificial pneumothorax, interruption of the phrenic nerve, or thoracoplasty. Artificial pneumothorax is by far the most widely used form of collapse therapy, the success of which depends on the degree of collapse. Since collapse is being instituted earlier at present than it was a few years back, the results are more gratifying. This is due in part to the early diagnoses. Due to the pleural adhesions, success is not obtained in a large number of cases

in which artificial pneumothorax is used. It is often possible to convert an ineffective pneumothorax case into a successful one by severing the adhesions. Since this was proposed by Jacobaeus<sup>1</sup> in 1913, there has been a gradual increase in its popularity.

Ten consecutive cases in which adhesions were severed by the closed intra-pleural pneumolysis method are reported in this paper. The electrosurgical method was used in all the cases. The electrodes used were the same as those designed by Matson<sup>2</sup>. Briefly the procedure used at this hospital is as follows: A stereoscopic examination is made on all cases in which artificial pneumothorax, after having been continued from three to six months, is unsuccessful because of pleural adhesions. If there is a possibility of these adhesions being severed, a thorascopic examination is advised. It is impossible to tell just what can be done in a case until a thorascopic examination is made<sup>3</sup>. The thoroscope as designed by Unverricht<sup>4</sup> is used in making this examination. The pre-operative preparation of the patient for the thorascopic examination and intra-pleural pneumolysis is the same as for any major thoracic operation. One or two days before the operation a pneumothorax refill is given, and if there is an appreciable amount of pleural fluid present, it is aspirated. Morphine sulphate gr.  $\frac{1}{4}$  is given just before the patient is taken to the operating room. The patient is placed on the operating table in as comfortable a position as possible with the operative side up. From the stereoscopic study a site is selected for the introduction of the first trocar and bakelite cannula. This site is usually in the anterior axillary line in the fourth interspace. The skin, intercostal tissues, and pleura, are infiltrated with one per cent procaine and a small skin incision made, through which the trocar and cannula are inserted. The thoroscope is inserted through the cannula and the site for the introduction of the second cannula is determined. A dark operating room is used as it intensifies the intra-thoracic light. It is sometimes necessary to change the location of one of the cannulae for better approach to an adhesion. In the majority of the cases reported in this paper the second cannula was introduced at the lower angle of the scapula. After the electrode has been inserted through the anterior cannula, with the thoroscope in



the posterior cannula, and the proper approach to the adhesion obtained, the adhesion is coagulated and severed with the high frequency current. We have found that by setting the Bovie unit at 32 for coagulation and 52 for cutting, satisfactory results are obtained. Following an operation each wound is closed with a deep suture of catgut. A small round pressure bandage is placed over the incision to prevent emphysema.

The post-operative treatment is absolute bed rest with the side operated upon up for one to two days. Cough is controlled with codeine, or morphine when necessary. A reading of the intra-pleural pressure is taken during the first week following the operation and refills are given as indicated. If the adhesion is large or there are multiple adhesions, the operation may have to be done in more than one stage.

The important indications for an intra-pleural pneumolysis are: In all cases in which unsatisfactory collapse has been obtained after three to six months; contracting fibrotic adhesions that are obliterating the pleural space; cases which require a high positive pressure to maintain an adequate collapse (in these there is danger of tearing into cavities); an early closure of the cavity is desired to prevent spread of the infection to other parts of the body.

In this series of cases no free bleeding was encountered during any of the operations. In several cases slight oozing resulted which was easily controlled with the coagulative current.

The temperature was elevated in every case following the operation gradually returning to normal usually within a week. In only one case was there an elevation of temperature for a month following the operation.

Pleural effusions did not present serious difficulty. In the majority of cases without effusion before a small amount developed following the operation. This, as a rule, was absorbed in one to two weeks. In those cases which had effusion before the operations to the extent requiring aspiration, there was noticeable lessening following the operations.

### CASE REPORTS

**Case 2076**, male, 21, was admitted to this hospital on October 19, 1931. He gave a history of a severe attack of influenza in May, 1931, followed by night sweats, elevated tempera-

ture, rapid pulse and a dry cough. These symptoms continued, and on admission to the U. S. Marine Hospital in New Orleans on August 5, 1931, a diagnosis of pulmonary tuberculosis moderately advanced was made. The physical examination and x-ray findings showed an increase in fibrosis on the right with scattered infiltration, with cavity formation just below the clavicle on the left. The sputum examination was positive for tubercle bacilli. Artificial pneumothorax, left, was started at this hospital on January 11, 1932. Refills were given every week for six months and then every other week, 200-500 c.c. of air being given each time and a negative pressure being maintained. The sputum became negative by September, 1932. The x-ray examination on October 10, 1933, showed, that the cavity had not completely closed, being held open by two long adhesions, and that there was a small amount of fluid present. The x-ray picture taken on August 15, 1934, showed about the same as before except that there was better collapse and a decrease in the amount of fluid. The cavity was still open.

An intra-pleural pneumolysis was performed on August 18, 1934. The thorascopic examination at this time showed two cord adhesions one cm. in diameter and five cm. and 5.5 cm. in length, respectively, attached from the anterior axillary region to the lower part of the upper lobe. Both of these adhesions were under considerable tension and were fibrotic. They were cut two cm. from the chest wall after which the severed ends were seen to retract about 3.5 cm. Following this operation, the x-ray examination showed complete collapse of the lung. Refills were given at from two to three week intervals, the amount of air at each refill being 50-200 c.c.

**Case 2340**, male, 24, was admitted to this hospital on April 11, 1934. He gave a history of a dry cough starting in the spring of 1933, with an attack of influenza in November of that year. The patient never fully recovered after the influenza. There was a gradual loss of weight, loss of strength and his cough became productive. He entered the U. S. Marine Hospital in Galveston, Texas, on October 16, 1933, at which time a diagnosis of pulmonary tuberculosis was made. The x-ray and physical findings showed scattered infiltration on the right with more marked infiltration and cavity form-

ation of the upper lobe on the left. Artificial pneumothorax was started on the left side on October 24, 1933. The patient remained at the hospital in Galveston until the first part of April, 1934. On admission to this hospital on April 11, 1934, the following diagnoses were made: Tuberculosis, pulmonary, chronic, active, far advanced (B); tonsillitis chronic, tuberculosis, epiglottitis. The treatment started in Galveston was continued. X-ray and physical findings at this time showed a small amount of infiltration on the right and partial collapse of the left lung; the cavity in the upper being held open by an adhesion. The sputum on repeated examinations was positive. The throat examination showed a marked tuberculous involvement of the epiglottitis.

An intra-pleural penumolysis was performed on January 29, 1935. The thorascopic examination at this time showed a cord adhesion one-half cm. in diameter and 10 cm. in length, attached between the partially collapsed upper lobe and the second rib in the mid-axillary line. A small amount of free fluid was in the pleural cavity. The adhesion was coagulated and cut 1.5 cm. from the chest wall. The severed ends of the adhesion were seen to separate about 2.5 cm.

The x-ray picture taken on February 17, 1935, showed practically complete collapse of

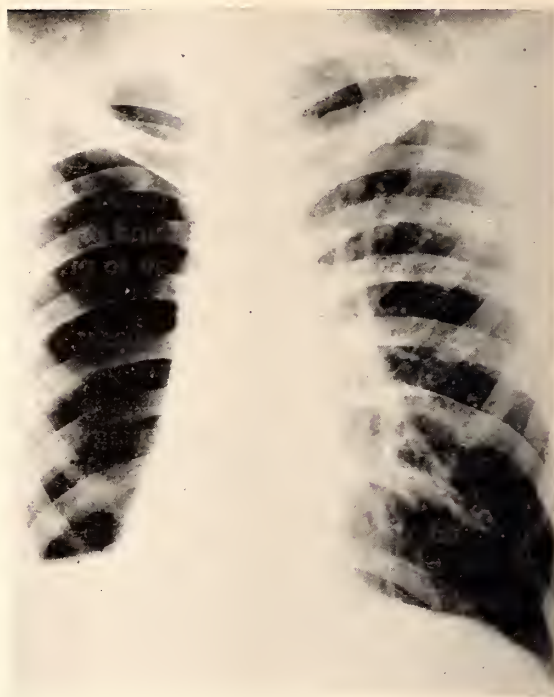


Fig. 2

Fig. 1 shows adhesion in case number one before the pneumolysis. Fig. 2 is a picture of the same case after the operation.

the left lung with collapse of the cavity. The sputum has been negative on five examinations since the operation. There has been a marked improvement in the throat condition. The temperature, since operation, varies between 36.2 and 37 degrees C., and pulse between 80 and 100. The patient's general condition at present (May 21 1935) is better than at any time since admission to this hospital.

Case 2307, male, 21, was admitted to this hospital on December 15, 1933. He gave a history of having been subject to frequent severe colds for about two years. In December, 1932, he began to have night sweats, developed a dry cough and noticed a marked loss of strength. He entered the U. S. Marine Hospital in Seattle, Washington, in February, 1933, at which time the x-ray and physical findings showed moderate infiltration of both upper lobes with a large cavity in left apex. Artificial pneumothorax was started on May 2, 1933, after a period of observation of three months, and was continued at this hospital. The x-ray examination made after admission to this hospital showed a small amount of infiltration on right with almost complete collapse on the left, there being a small part of the upper lobe at the

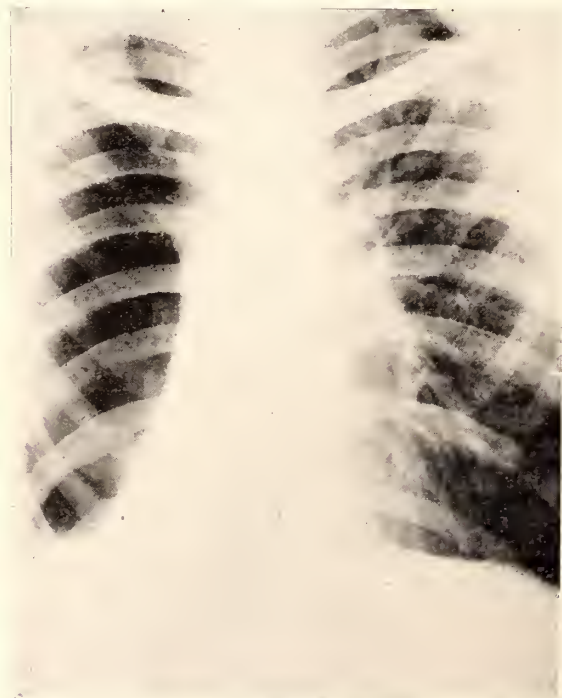


Fig. 1



level of the cavity that had not collapsed completely due to adhesions. The sputum was positive on January 18, 1934, and April 6, 1934.

A left intra-pleural pneumolysis was performed on August 16, 1934. The thorascopic examination at this time showed two cord adhesions running from partially collapsed portion of the upper lobe laterally to the second interspace anterior axillary line (0.5x6 cm. and 1.5x6 cm.) No free fluid was seen in the pleural cavity. Both of these adhesions were coagulated and cut 1.5 cm. from the chest wall. The severed ends were seen to separate between three cm. and six cm. The temperature was normal before operation, and for one week after operation was between 37 and 38 degrees C. The sputum examination has been negative on 10 occasions since the operation. The patient's general condition was satisfactory for five months following the intra-pleural pneumolysis. He developed a pleural effusion the latter part of January, 1935, which had to be aspirated several times and has had a marked elevation of temperature. The cause of this setback has not been determined. The patient still has one cord adhesion in the tip of the apex. It was not severed at the first operation on account of its inaccessibility.

**Case 2305**, male, 18, was admitted to this hospital on December 15, 1933. He gave a history of a productive cough and a gradual loss of weight, starting in the summer of 1933. In August of that year the x-ray and physical findings showed extensive infiltration throughout the upper right lobe. No definite cavity; caseous area three cm. in diameter in upper right lobe. A diagnosis of pulmonary tuberculosis, moderately advanced, was made and artificial pneumothorax instituted in September, 1933. The x-ray examination one year later showed about 50 per cent collapse of the right lung. The sputum was negative. This degree of collapse was maintained by weekly refills of from 200 to 600 c.c. of air.

An intra-pleural pneumolysis, right, was performed on September 13, 1934. A thorascopic examination at this time showed a small amount of free fluid in the pleural cavity. A large band adhesion (7 cm. long and 0.5 cm. in diameter) attached between the lower border of the upper lobe and the chest wall at the posterior axillary line. A short adhesion (2.5 cm. long and .5 cm. in diameter) just back of and

parallel to the long adhesion, and two string adhesions (about 2.5 cm. long) in the posterior gutter near the spine were seen. The long adhesion mentioned above and the two string adhesions were coagulated and severed. There

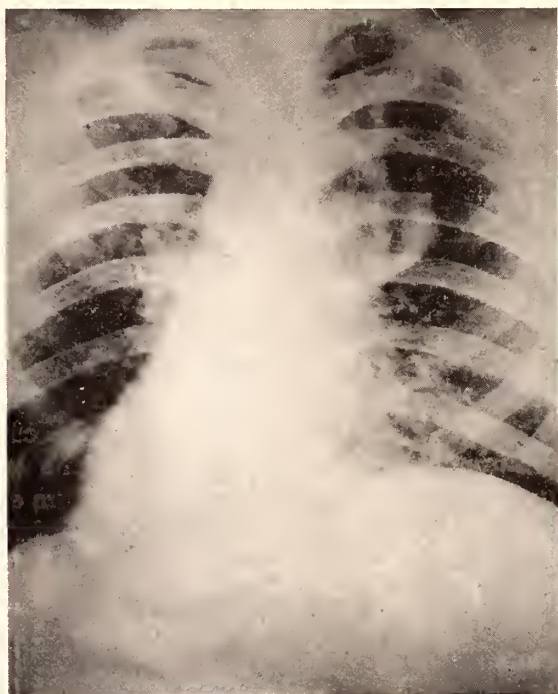


Fig. 3



Fig. 4

Fig. 3 and Fig. 4 show the degree of collapse in case five before and after the pneumolysis. Note the degree of selective collapse in this case.

followed a moderate expansion of the lung which made it impossible to see the small adhesion. The x-ray examination made on September 21, 1934, showed better collapse. Re-fills have been given every other week since operation, and the amount of air necessary to maintain an adequate collapse is less than before the operation.

**Case 2383**, male, 25, was admitted to this hospital on August 6, 1934. He gave a history of first noticing a gradual loss of weight in the summer of 1932. In January, 1933, he began to run an afternoon fever and tired on the least exertion. He expectorated a small amount of blood in January, 1934, but did not consult a doctor until June of that year, at which time a diagnosis of pulmonary tuberculosis was made. At the time of admission to this hospital he showed infiltration of the upper lobe with cavity formation behind right clavicle. The left lung was apparently negative. The sputum examination at this time was positive. Artificial pneumothorax was started on October 10, 1934. A band adhesion over the site of the cavity prevented adequate collapse and closure of the cavity.

An intra-pleural pneumolysis was performed on March 6, 1935, and the thorascopic examination at this time showed a large fold adhesion (6 cm. long, 3 cm. wide and .5 cm. thick) from the partially collapsed upper lobe laterally to posterior axillary line. Three small string adhesions were seen in the apex. The fold adhesion was coagulated and severed two cm. from the chest wall, the ends of which were seen to separate about six cm. It was not thought necessary to cut string adhesions as they were not interfering with collapse. The x-ray examination made on March 8, 1935, showed about two-thirds compression of the right lung with closure of the cavity. Five sputum examinations since the operation—the last being run on March 30, 1935—were negative. The temperature was normal before and only slightly elevated for two days following the operation. The prognosis of this case seems more favorable at present than at any time since admission.

**Case 1558**, male, 32, was admitted to this hospital on February 10, 1928. He gave a history of a productive cough, loss of weight, and blood-streaked sputum during the summer of

1927. The x-ray and physical examinations showed scattered infiltration throughout the upper two lobes on the right. The patient did not improve under routine hospital treatment, and shelled out a cavity about four cm. in diameter in the right apex. Artificial pneumothorax was started on September 19, 1932. Complete closure of the cavity was prevented by adhesions over this area. Pleural fluid formed which had to be aspirated on a number of occasions because of severe pressure symptoms. Examination of the aspirated fluid on November 11, 1934, showed numerous pus cells. The sputum was positive. The x-ray examination on April 18, 1935, showed the cavity still open and a small amount of fluid. Examination of the chest wall at this time showed several small unhealed skin lesions which were the result of the aspirations. The patient had a severe cough and was expectorating about four cups a day.

An intra-pleural pneumolysis, left was performed on April 24, 1935. The thorascopic examination showed a small amount of free fluid, a thickened p'eura covered with fibrin, and several adhesions preventing complete collapse of the upper lobe. The lower of these adhesions extended from the middle of the lower border of the upper lobe to the upper axillary region (6 cm. long and 1 cm. wide). A short adhesion (2.5 cm. long and .5 cm. wide) extended from the lower border of the upper lobe running posteriorly to the chest wall at the level of the fourth rib. Above these two adhesions were several string adhesions. The two large adhesions mentioned above were coagulated and severed about 1.5 cm. from the chest wall. The ends of these two adhesions were seen to separate about 2.5 cm. after they had been cut.

The x-ray examination one week following the operation showed better compression of the right lung and a small amount of fluid. Before the pneumolysis the prognosis of this case was poor. The patient is expectorating about one-half cup a day at present as compared with four before the operation. There has been a marked decrease in the severity of his cough. The sputum is positive. The patient's general condition is better at present than at any time within the past ten months.

**Case 1961**, male, 38, was admitted to this hos-



pital on October 16, 1930. He gave a history of gradual loss of weight, a severe cold and a productive cough in 1925, at which time a diagnosis of pulmonary tuberculosis was made. He remained in the hospital from that time until January, 1929, at which time he left the hospital against medical advice. He developed a severe cold in October, 1930, had a severe hemorrhage and re-entered the hospital with extensive infiltration of the right upper lobe and a cavity three cm. in diameter behind the clavicle. The left side showed scattered areas of fibrosis with no activity. He refused artificial pneumothorax, but finally it was started in October, 1933. X-ray examination made on September 6, 1934, showed about a 75 per cent collapse, the cavity being held open by a broad band adhesion.

An intra-pleural pneumolysis, right, was performed on September 28, 1934. The thorascopic examination showed partial collapse, complete collapse being prevented by a broad band adhesion extending from the lower border of the upper lobe laterally to mid-axillary line. The adhesion was four cm. in diameter by three cm. long by two cm. in thickness. This was coagulated and cut two cm. from the chest wall until it was approximately half way through. Due to the patient's general condition it was thought better to complete the operation at another time. The x-ray examination made on April 18 1935, showed much better collapse of the lung. The large adhesion which had been partially cut as mentioned above had stretched until it appeared to be more of a cord adhesion and there was apparent closure of the cavity. A small amount of free fluid lay in the phrenic angle. The patient has refused to have a second operation. The sputum has been negative on repeated examinations since December, 1933. He had an interruption of the right phrenic nerve before artificial pneumothorax was instituted.

**Case 2304**, male, 38, was admitted to this hospital on December 15, 1933. He gave a history of gradual loss of weight and a productive cough during the month of January, 1933. He entered the U. S. Marine Hospital, Seattle, in September of that year, at which time x-ray and physical findings showed moderate infiltration of both sides with cavity formation in the right apex. Artificial pneumothorax was started on September 22, 1933, and continued

at this hospital. X-ray examination on July 11, 1934, showed about five-sixth's compression of the upper lobe and about one-fourth compression of the lower lobes, complete collapse being prevented by a band adhesion over the site of the cavity. A small amount of fluid was at the base. The patient was doing nicely until July 10, 1934, at which time he had a moderate hemorrhage ( $\frac{1}{2}$  cup).

An intra-pleural pneumolysis, right, was performed on July 28, 1934, and the thorascopic examination showed a band adhesion about five cm. long over the site of the cavity, running laterally to mid-axillary region. A small amount of fluid was in the pleural cavity. This adhesion was severed about two cm. from the chest wall. The temperature was elevated for two days following the operation. The sputum was positive on August 1, 1934. Since that date 10 negative examinations have been made. X-ray showed collapse of the cavity following the operation.

**Case 1870**, male, 26, was admitted to this hospital on March 22, 1930. He gave a history of developing a severe cold and a productive cough in November, 1929, followed by a severe hemorrhage, pain in the chest and night sweats. On admission to this hospital x-ray and physical findings showed moderate infiltration of both apices with a cavity three cm. in diameter at the level of the third rib front, on the left. The sputum at this time was negative.

An intra-pleural pneumolysis, left, was performed on September 11, 1934. The thorascopic examination showed a cord adhesion one cm. in diameter and six cm. in length extending from the upper and posterior portion of the lower lobe to the posterior chest wall in the fifth interspace. There was also a fold adhesion, the anterior and lower border at the level of the third rib in the mid-axillary line. The cord adhesion was coagulated and cut 1.5 cm. from the chest wall; the cut ends were seen to separate about four cm. The fold adhesion was then coagulated and cut for a distance of about two cm. at its attachment to the chest wall. The cut area of this adhesion separated into a "V" shape.

Following the operation the temperature was elevated for five weeks, and pleural effusion developed which had to be aspirated four times (200 to 600 c.c., the last aspiration being

on Nov. 9, 1934). At present the patient's general condition is good.

The x-ray examinations following the operation showed better collapse of the left lung. The sputum examination is negative. Refills are being given every three weeks at present, and 100 c.c. of air is sufficient to maintain an adequate collapse. This is considerably less than was necessary before the intra-pleural pneumolysis.

**Case 2438**, male, 31, was admitted to this hospital on February 24, 1935. He gave a history of having had a severe, persistent cold in November, 1933, followed by a productive cough, loss of weight, and strength. He entered the U. S. Marine Hospital in Baltimore in February, 1934, at which time a diagnosis of pulmonary tuberculosis was made. The physical and x-ray findings showed a large cavity at the level of the second inter-space on the left. Artificial pneumothorax was started in November, 1934. The patient left the hospital of Baltimore in December and entered the U. S. Marine Hospital in Norfolk on December 29, 1934. At that time the x-ray and physical findings showed that the right lung was apparently negative while there was partial collapse of the left lung, complete collapse being prevented by two large band adhesions over the site of the cavity. Artificial pneumothorax was continued and the patient was transferred from Norfolk to the U. S. Marine Hospital, Fort Stanton, New Mexico, on February 24, 1935. The x-ray and physical examinations at this hospital were the same as those found in Norfolk, except a small amount of fluid had formed in the left pleural cavity while the patient was enroute to this hospital. This gradually increased until it had to be aspirated on several occasions, the first time being on March 20, 1935, when 550 c.c. of clear straw-colored fluid were removed. The sputum was positive on repeated examinations.

An intra-pleural pneumolysis left was performed on April 19, 1935. The thorascopic examination showed that two adhesions (2 cm. in diameter by 3 cm. long, and 1 cm. in diameter by 5 cm. respectively) were preventing the lung from complete collapse, these adhesions being attached from the lower part of the upper lobe to the mid-axillary region. A small amount of free fluid was in the pleural cavity. Both of these adhesions were under consider-

able tension, the severed ends of which were seen to separate approximately four cm. Following this operation there was marked improvement in the patient's general condition. The temperature range at present is between 36.4 and 37.1 degrees C., as compared with 36 and 38.2 degrees before the operation. The sputum examination was positive before the operation; two examinations since the operation were negative. X-ray examination made on April 30, 1935, showed complete collapse of the left lung with closure of the cavity. There is still a small amount of free fluid in the pleural cavity. The patient has gained five pounds since the pneumolysis. At present the prognosis of this case seems favorable, made possible by the intra-pleural pneumolysis.

### Summary

1. It is not advisable to continue an unsuccessful pneumothorax case over a prolonged period of time.
2. It is often possible to convert an unsuccessful pneumothorax case into a successful one by severing the adhesions.
3. The results obtained by intra-pleural pneumolysis at this hospital have been gratifying and this procedure should be in more general use among those treating tuberculosis.

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## RADIATION THERAPY IN VARIOUS SURFACE LESIONS

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(Presented before the New Mexico State Medical Society at its Fifty-third Annual Session, held at Albuquerque, N. M., May 23-25, 1935.)

Radiation therapy of neoplastic disease of the body surface is interesting, the clinical material is abundant, and the end results are generally, but not always, satisfactory. Much has been added to our knowledge of clinical radiology in



recent years. From Ewing we have learned cell cytology in its reactions to the energy of radiation. McCarthy and Broders have classified and graded malignant cells. Physicists have built good x-ray tubes, and electrical engineers have perfected x-ray apparatus both pleasing to the eye and reliable—but exceedingly expensive. Radium has been placed in better containers, both for external and interstitial use, and the radiologist is gradually changing from technician to clinician. There is no longer any excuse for guess work or slipshod methods of dosage and technical procedure.

It is difficult to summarize in a few words the limitations of radiation therapy for the multitude of skin and surface lesions which befall mankind. The ordinary gamut of acute skin diseases—including anaphylactic, systemic, and classical organic eruptions—belong to the dermatologist and the general practitioner. So do the various surface manifestations of lues, although when these become chronic the diagnostic acumen of all hands may need to be called to duty. The same may be said of lumps and other tuberculides. These, again, may be found associated with lues or epithelioma; and altogether too frequently all three of these fundamentally systemic maladies may form an unholy trinity which seems to resist the combined forces of scientific medicine and surgery.

We have made the error of treating by radiation certain chronic sores and ulcerating lesions which have the clinical appearance of neoplastic growths, when the pathology would have been discerned by a Wassermann or Kahn test. This demonstrates acutely the necessity for a radiologist's being thoroughly grounded in pathology and diagnosis before venturing forth as a clinical radiologist.

Experience has taught that certain localized acute and chronic infections are amenable to radiation, principally acne vulgaris, furunculosis and carbuncles, the latter being particularly responsive to such treatment. Then there are the scaly dermatoses of which variegated eczema is typical, and simple warts, moles, nevi and angiomas. There is also a certain group of lupus vulgares and tuberculous adenopathies which are more responsive to radiation than to either surgery or drug therapy. How-

ever, the big field for our efforts is that of superficial malignancies. Here, for a great number of years, x-rays and radium have proved their superiority over any other form of treatment, and to this work we shall briefly devote our efforts for the allotted time.

The most common local malignancy met with is the basal cell epithelioma, usually prevalent about the head and face, and not common before the age of 40. No age is exempt, although skin approaching senility is more prone to take on malignant degeneration. In all such cases we expect good results in 90 to 95 per cent of cases treated. The squamous type of cell is more radiation-resistant and the recovery rate will probably not reach above 60 per cent. We have referred only to primary lesions, large and small, and not to postoperative recurrences where tissue destruction has been considerable, or where metastases have supervened.

For lesions, such as keloids, pigmented or melanotic moles, plantar warts, hyperkeratoses, papillomata, mixed sarcomas, angiomas, etc., radiation is in the foreground, if not always the choice of treatment as it gives success in 60 to 70 per cent of the cases. (Malignant melanomata, being radiation-resistant, are not included.)

There must be an established diagnosis and a carefully planned and adequately executed treatment regime. It has often been stated that the mere possession of an x-ray treatment machine and a certain amount of radium does not necessarily imply that the owner thereof is qualified to practice therapeutic radiology. Today, however, we are glad to state that this situation is rapidly changing and that the great majority of radiologists are qualified to practice their specialty. There is now in function the American National Board of Radiology that is actively engaged with the examination of practitioners in that specialty, and it is a pleasure to note that a surprisingly large number have been certified in the various divisions of roentgen diagnosis, and therapy, and radium therapy.

Experience has demonstrated that no single agent can be expected to serve effectively in all patients. Many lesions respond readily to radium or to x-rays alone. Others are more easily subjugated by a combination of the two, and in certain cases it will be found advantageous to also employ electrical surgery, either

er the radiotome or the coagulation needle. For the purpose of illustration we have selected a few of the ordinary run of cases in an attempt to demonstrate our conception of a proper treatment.

1. X-rays alone: 100 KV. for superficial lesions; 200 KV. for local recurrences and superficial metastases; 550 KV. for deep or remote metastases.

2. Radium alone: External radium applicators; interstitial radium implantation with seeds and element needles; and tele radium.

3. Electrodesiccation—Electrocoagulation—The Radiotome.

4. Any combination of the agents and modalities named.

Naturally the proper selection of methods will depend entirely upon the location of the lesion, its pathology, size, characteristics, area of involvement, and the tissues affected.

## THE GENERAL ASPECTS OF SURGERY ON THE LARGE INTESTINES

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Surgeons who frequently have to cope with lesions of the colon and rectum seem generally agreed that it is impossible to apply a standard set of procedures for operations in this field. A number of factors obtain which must determine the type of operation to be utilized if an optimal result is to be realized. With this paper we review briefly some of the pertinent considerations of surgery of the large intestine, and stress the factors which appear to be responsible for the more hopeful outlook in recent years from this type of surgery.

**Anatomy and Physiology:** Since standardization of operations in this field has not seemed feasible, it is obviously essential for the surgeon confronted with a lesion of the colon to be

familiar with the general anatomic and physiologic aspects of the large intestine.

Anatomically and physiologically, as well as developmentally, the colon is divided into two halves, the right and the left. The distinct functions of the two segments and the usual differences in the types of malignant growth occurring in them are of practical significance. The right half of the colon is the absorbing segment, and in this is comparable to the small bowel with which it has a common embryologic origin, namely, the midgut. The left half of the colon is a development of the hindgut and its function is that of storage and evacuation. A distinct blood supply likewise exists, the superior mesenteric artery serving the right, or absorptive segment, and the inferior mesenteric artery nourishing the distal half.

The results of total colectomy indicate that the human can live without a colon. However, as Bergen has recently remarked, this does not minimize the gravity of surgery on the large intestine, and as he has stated further, the apparently conflicting factors only emphasize the need for further study of the physiology of the colon.

**The more common lesions** encountered at operation on the large intestine are carcinoma, diverticulum and diverticulitis, and tuberculosis. Of these by far the most important is carcinoma.

Azeman and others, in a series of 70,000 necropsies, found that 5,796 deaths had occurred from carcinoma in general, and that in almost a tenth of these cases the carcinoma was in the large intestine; in 35 cases the carcinoma was in the cecum, in 83 in the sigmoid, in 262 in the rectum, and in 131 in other portions of the large intestine. Thus 345 out of 511 carcinomas of the large intestine, or more than three-fifths, occurred in the rectosigmoid region. Other reports are roughly in accord with these figures.

Carcinoma of the colon may occur at any age, although it is most frequent in the fifth and sixth decades. The condition apparently preponderates in males. In cases at the clinic, men have been affected twice as frequently as women.

Available data suggest that diverticulum of the colon occurs in about five per cent of cases, although, of course, lower and higher figures have been reported. Diverticulitis seems to develop in about 15 per cent of these cases. Ran-

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kin and Brown found 60 per cent of their patients to be males. Most of the patients were more than 40 years of age. Diverticula occur with increasing frequency from the right to the left side of the colon, and are most common in the sigmoid.

Tuberculosis of the intestine most frequently involves the ileocecal region. The primary type is more frequent in children, and the secondary in adults.

Other surgical lesions of the colon and rectum which are met with less frequently include fistula, intussusception, volvulus, megacolon, rectal prolapse, stricture of the rectum, polyposis, and the whole group of infectious granulomas. Chronic ulcerative colitis, since the use of the regimen suggested by Bagen which includes serum and vaccine therapy, only rarely requires surgical treatment.

Such lesions as fibromyoma, angioma, lipoma, endothelioma, and so forth, merit mention only because of their rarity.

**Symptoms:** Although the scope of this paper does not permit a consideration of the symptoms of all of the lesions of the large intestine, some of the cardinal features of the more important lesions probably should be mentioned.

The symptoms of carcinoma of the large intestine vary with the site of the lesion. A good general rule, however, is to regard seriously any unusual change in the intestinal habits. Pain, when present, is often not at the site of the lesion. This is probably because of the nature of the nerve supply and variations in width of the lumen of the bowel as well as the territory in the abdomen covered (Bagen). This is particularly true of new growths in the right half of the colon. The distress accompanying a lesion in this region is usually referred to the epigastrium. It may be cramp-like, aching, or pylorospastic; rarely is it obstructive. This can be understood if we recall the physiology of this part of the bowel, namely, that the stools are liquid prior to the absorption which causes the content of the bowel to be relatively solid on reaching the left half of the colon. Furthermore, growths in the right half do not tend to encircle the bowel but tend to perforation or abscess formation. When the growth is near the ileocecal valve, "mild" dyspepsia simulating chronic appendicitis is common. Owing to the friability of the growth, increased absorption seems to take place, and

thus loss of weight and strength often occur before any other evidence of intestinal disease appears.

Anemia, often profound, is a common manifestation of lesions, of the right half of the colon and indeed it may be the only symptom. No adequate explanation of this phenomenon has been offered. It is not due to hemorrhage, as the anemia is at times most severe when the tumor has not bled. It is conceivable that destruction of blood results from some perverted function of the mucous membrane, with increased absorption of toxins. A palpable mass is a fairly frequent finding. Alternate constipation and diarrhea may be present, but gross blood in the stool is exceedingly rare.

Lesions of the left half of the colon present quite a different picture. The colon is narrower and fecal material is usually formed, hence symptoms of obstruction are fairly common. The obstruction is usually slowly progressive and well tolerated. In the later stages, a so-called compensatory diarrhea occurs. The latter, however, seems more likely to be incident to irritation of the intestinal wall than to the obstruction per se. Blood in the stools occurs not infrequently, and obviously the lower the lesion the more prominent is this finding.

In rectal carcinoma, bleeding is unquestionably the most prominent and pronounced symptom, being present in about 85 per cent of our cases. It is our opinion that more than this proportion of patients have lost blood by rectum, but that it has not been offered as a symptom because the patient has not been aware of it. It should be borne in mind that although tenesmus, frequent stools, and the passage of large quantities of mucus often accompany bleeding, the presence of blood in the stool may be the only sign of rectal carcinoma. Unfortunately we have seen a number of cases of rectal bleeding, in which patients were treated by hemorrhoidectomy elsewhere, when a careful digital examination would have revealed carcinoma. The presence of pain, loss of weight and strength, and anemia suggest that the growth is more than a local affair.

The most common symptom of diverticulitis is pain of some kind, and such pain is usually in the left lower quadrant. Of the patients seen at the clinic, 60 per cent presented the symptom of constipation and 11 per cent had diarrhea at some time. Blood in the stools is less

common than in cancer, while the frequency of perforation is greater in diverticulitis. Vesical symptoms are fairly common. The symptoms of diverticulitis, however, may be of long standing, and they differ from those of cancer in that they are often compatible with a relatively robust state of health for an indefinite period.

The symptoms of primary tuberculosis of the bowel (usually in the ileocecal region) roughly simulate those of cancer. The fact that this type of lesion occurs most frequently in children should suggest its presence when consistent symptoms are present. In the secondary adult type, tuberculosis is usually present elsewhere in the body.

**Diagnosis:** Next to a carefully taken history and physical examination, the most important aid in diagnosing lesions of the large intestine above the rectum is the roentgen ray. The use of the barium enema is most satisfactory and the double contrast method is valuable. The barium meal is dangerous in cases of obstruction, sometimes superimposing an acute intestinal obstruction on a chronic process.

The importance of digital and proctoscopic examinations cannot be overestimated. These methods of diagnosis must be utilized in every case of rectal bleeding lest we fail to recognize cases of rectal or rectosigmoidal carcinoma which may be amenable to early surgical treatment. The proctoscope will likewise reveal ulcerations of chronic ulcerative colitis as well as amebic ulcers. It is especially important to recognize the former early, since the treatment of ulcerative colitis has been placed on a more rational and favorable basis with the discovery of its probable etiologic agent, the diplostreptococcus of Bargen.

Surgical exploration may be necessary to differentiate intestinal tuberculosis and diverticulosis from carcinoma.

**Preoperative Treatment**—While we do not minimize the importance of surgical technic and judgment in the eradication of lesions of the colon, we do wish to emphasize the prominent part played by preoperative management in reducing in recent years the mortality in colonic surgery. For the past six years an attempt has been made at the clinic to decrease the incidence of peritonitis by a careful preoperative regimen in which both medical and surgical services co-operate. The patient is

placed in the hospital for four or five days prior to operation. A diet high in carbohydrate and low in protein is given which obviously leaves but little residue in the bowel. This diet includes candy, fruit juices, broths, and so forth. The bowel is cleansed by mild saline laxatives and by gentle rectal irrigations. If a material degree of obstruction is present, catharsis is of course not employed. About 72 hours before operation, a vaccine prepared from colon bacilli and streptococci, which have been found to be the chief offenders in fatal cases of peritonitis, is injected intraperitoneally. The temperature of 102 to 103° F. which usually follows, subsides in from 24 to 36 hours.

This method of preoperative management has effected a reduction of 66 per cent in the incidence of fatal peritonitis at the clinic in these cases. The occasional case of fatal postoperative peritonitis which we have encountered has apparently resulted from an indeterminate type of streptococcus.

Recently, Young has reported encouraging results by the production of nonspecific peritoneal reaction following the preoperative injection of amniotic fluid into the peritoneal cavity. Our results in relatively few cases in which this was tried have not seemed favorable. However, we hesitate to be too hasty in condemning the method on the basis of the present data.

**Operative Treatment:** Although, as has been mentioned, individual factors in each case preclude the practicability of any definite standardization of operative procedures, certain general principles must be followed. On the whole graded procedures seem the safest. With lesions on the right side of the colon ileocolostomy with subsequent hemicolectomy have in the majority of cases given the most satisfactory results. On the other hand young patients in good general condition who have lesions of the ileocecal region which are fairly easy to remove, have been found to tolerate well a one-stage resection of the right colon and terminal portion of the ileum. A Witzel type of enterostomy may be used as a "safety valve" in such cases.

In easily mobilized portions of the colon the exteriorization type of operation seems the procedure of choice. This utilizes the most desirable features of the Mikulicz procedure and gives excellent results. We believe the chief



advantages of this method over that of Mikulicz lies in resection of a fan-shaped area of gland-bearing mesentery, and by use of the three-bladed clamp the growth may be removed at the time of the primary operation without additional risk. This procedure is not in truth an obstructive resection, as a small cautery opening is made in the proximal colonic loop, for the escape of gas, usually not later than 18 hours after operation and before the patient becomes distended. The wound is well covered by vaseline gauze and, if this protection is used, it almost invariably heals by first intention. The clamp usually falls off in six to eight days and, if not, it may be removed.

For lesions in the region of the rectum and rectosigmoid, primary colostomy, followed by perineal resection, is the procedure that seems applicable in most cases. The combined abdominoperineal resection of Miles is used for young, apparently robust patients who have rectal carcinoma. The mortality for the combined operation in the hands of experienced surgeons is about 12 per cent, in contrast to four per cent for the two-stage operation of posterior resection of the rectum preceded by colostomy. Its use for younger individuals seems justified on the basis that it is a more radical attempt to eradicate the more malignant type of growth characteristic of this age group. We rarely utilize the combined procedure for patients more than 55 years of age because of the added risk entailed, although it is quite possible that a slightly higher percentage of cures might ensue among those who survive.

Each of the aforementioned procedures obviously requires a permanent colonic stoma. In order to avoid the necessity for such a colonic stoma, which is a horror to many patients, segmental resection of low sigmoidal lesions has been employed in a select group of cases. It is obviously not a radical procedure, but it may be employed with satisfactory results in cases in which the lesion is small, of polypoid character, and of a low grade of malignancy.

Partial or complete colectomy is indicated in cases of multiple polyposis of the colon and in the rare severe cases of chronic ulcerative colitis which fail to respond to medical regimen, including serum and vaccine prepared from the diplostreptococcus of Bargen. In these

cases ileostomy is necessary. Difficulty is often experienced in controlling the looseness of the ileal evacuations, with resultant loss of body fluids; however, in time, the ileum seems to take on the function of the missing colon, namely, absorption of fluid and concentration of intestinal contents.

**Postoperative Care:** During the first few days after operation the patient is given, mostly under the skin or by vein, fluids in sufficient quantity to prevent dehydration. The colonic loop is punctured on the first or the third or fourth postoperative day, depending on the presence or absence of distention. We prefer to avoid rather than to treat this symptom, if possible. We have not been aware of untoward effects from permitting the patients to have sips of fluid early—one-half to one ounce every hour. This seems to add materially to the patient's comfort. The fasting stomach secretes 2,000 to 3,000 c.c. or more in a day, so it hardly seems conceivable that the addition of such small amounts of fluid would incur damage. After the passage of gas becomes free, liquids are given by mouth as tolerated. The patient is then not bothered with the intravenous or subcutaneous administration of fluids unless he is unable to maintain an adequate fluid balance on their oral administration. When full fluids are tolerated, a non-residue diet is permitted, to be followed in a few days by a diet consisting of low residue foods. After eight to 10 days the patient may ingest foods that are included in the average normal diet.

If the patient's resistance has been lowered unduly, blood transfusion is of benefit and may be repeated as indicated. In the occasional case of ileus, hot stupes and pituitrin, eserine, or acetylcholine have proved of benefit. Transnasal suction is a valuable adjunct in keeping the stomach and duodenum empty. Intraspinal injections of procaine have at times relieved ileus. Rarely is enterostomy indicated.

The etiology of parotitis, which occurs so frequently after colonic surgery, is not understood. Sucking slices of orange and chewing gum seem to lessen its incidence. The most satisfactory treatment of the condition is the application of radium.

**The prognosis** following removal of lesions of the colon depends on a number of factors: The grade of the lesion and presence or absence of

metastasis, if malignant; the age and general condition of the patient; and the location and extent of the lesion and type of operative procedure performed. When lesions are benign, obviously the only risk is that of the operation, with the exception of ileostomy following colectomy in which case the physiologic disturbance is sometimes fatal. The mortality from carcinoma of the right half of the colon is less than that of the left half. In a series of 221 cases of carcinoma of the cecum reviewed recently by one of us (Dixon), 51 per cent of the patients lived five years or more following operation. The percentage of cures when the left half of the colon and the rectum are involved has ranged between 35 and 40 per cent, when the growths appeared to be completely extirpated.

The unfavorable prognostic factors are the presence of glandular involvement, distant metastasis by way of the blood stream, a locally extensive lesion with perforation, general debilitation, senility, and carcinoma of a high grade. The occurrence of highly malignant lesions in young individuals warrants a guarded prognosis. Fortunately, carcinoma of the colon and rectum is most frequently graded two, or lower, according to Broder's classification.

**Summary and Conclusions:** Carcinoma is the most important lesion of the colon from the surgical standpoint, although tuberculosis and diverticulitis are also of importance.

The recent reduction of 66 per cent in the incidence of fatal peritonitis following operations on the colon seems largely attributable to preoperative management. This includes the intraperitoneal use of vaccine.

The early diagnosis of cancer of the large intestine should increase the operability in these cases. The prominent symptoms of lesions of the right half of the colon are anemia, abdominal distress, and a palpable mass. Those on the left side are more often incident to obstruction and are associated with the passage of blood and mucus in the stools. The importance of digital examination in every case in which there is rectal bleeding cannot be over-emphasized. Most carcinomas of the large intestine occur in the rectum and rectosigmoid and most of them bleed.

The outlook for the surgical treatment of carcinoma of the colon and rectum is far

from hopeless. In the cases amenable to surgery, about 35 to 50 per cent of the patients have remained well for five years or more. Carcinoma of the right half of the colon offers the most favorable prognosis.

## ACUTE CONTAGIOUS DISEASES FROM THE STANDPOINT OF THE PEDIATRICIAN

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(Read before the 53rd annual meeting of the New Mexico Medical Society, Albuquerque, May 23-25, 1935.)

Acute infectious diseases present an important problem. Certain diseases are preventable—small-pox, diphtheria, typhoid, and to a limited extent, pertussis. Other common infections may be modified by convalescent sera—measles, scarlet fever, chicken-pox and mumps. A few may be treated with sera—epidemic meningitis, and certain infections, as tetanus.

This discussion is a review of the present situation with statistics on the value of prophylactic measures in certain diseases, especially from the public health viewpoint as seen by the pediatrician. The pediatrician and the general practitioners may be valuable to the public health officers in spreading knowledge of public health measures as they are in constant touch with communicable diseases.

Prophylaxis is more important than treatment. Prevention has reduced morbidity as well as mortality of several diseases, particularly in the past 25 years.

Thomas M. Rivers<sup>1</sup> concludes:

"Sera from individuals convalescing from virus diseases are of doubtful value in the treatment of the infections. Such sera, however, are at times splendid prophylactic agents. Prophylaxis against small-pox, yellow fever, measles, diseases of the virus group, equals any that can be mentioned among bacterial infections."

**Diphtheria** is seen much less frequently than formerly due to the use of toxin anti-toxin and, more recently, toxoid and the alum precipitated toxoid. A review<sup>2</sup> of diphtheria in the United States for 1933 gives the New England states the lowest mortality with the Mid-Atlantic states a close second. In New York the rate was 1.2 per 100,000, a remarkable figure. Salt Lake City had no death from diphtheria in 1933—nor from typhoid fever. Chi-



cage had a rate of 0.2 per 100,000. The following table from the same journal shows the Pacific Coast situation: Seattle, none; Spokane, none; Tacoma, 0.9; Portland, 1.0; Oakland, 0.7; San Francisco, 1.2; Denver, 2.0; Los Angeles, 3.7; and San Diego, 4.0. The Mountain States had a low average. The Cities with a high rate were: Atlanta, Georgia, 12.0; Dallas, Texas, 12.0; and Lowell, Mass, 12.0. New Mexico had, in 1933, 41 deaths with a population of 416,690, or about 10 plus per 100,000.

#### B. B. Bagby<sup>5</sup> says:

"The number of deaths in a community corresponds closely to the per cent of school children immunized."

In New York City, up to 1895, the average death rate for diphtheria was 150 per 100,000 and in some years as high as 280. In 1930 the rate was 2.8. Schick, in 1908, first reported his test for diphtheria susceptibles. Park in New York, first started using toxin anti-toxin in 1917 and used it on a wholesale scale in 1920. The saving, by prevention over the cost of treatment of diphtheria, is well illustrated by the figures from New York City where in 1931 they saved \$280,000.00 as compared to 1927.

The Metropolitan Life Insurance Company has spent \$100,000.00 annually for advertisements urging prophylaxis against small-pox and diphtheria—because it pays.

The age of greatest susceptibility is between the sixth month and 12th year of life. The maximum period is about the fourth year or in the pre-school age period.

The choice of material for prophylaxis is diphtheria toxoid which is free of protein and seems to confer a lasting immunity. This is used for those under six years of age, while toxin anti-toxin is used for older children and adults. It seems the toxoid gives more local and constitutional reactions in those over six years which the T. A. T. does not.

The dose is one c.c. of the toxoid intramuscularly every two weeks for at least two doses—better three, which give a higher immunity in a shorter time. The toxoid confers immunity in about  $\frac{1}{2}$  the time required by T. A. T. as shown by repeated use of the Schick Test. With the T. A. T. there is a slight danger of sensitizing the patient to the foreign protein. The use of the toxoid dose away with this danger. In the older persons the danger of serum sensitization is so slight, as compared to the danger of the disease, that one can safely take

the chance. Personally, we have seen only one case that was sensitive to the serum in the T. A. T. and got severe reactions from each of the three doses. We have never seen a case who had had the T. A. T. and later a serum who had an anaphylactic reaction.

The time for the Schick test is 90 days after the last dose of the toxoid or T. A. T. The Schick test is read one week after it is put on, as the pseudoreaction of the protein is then past. It has been observed that dark complexioned persons react with a darker stain than do blonde persons, and the reactions last longer with more of the bran like desquamation.

The duration of diphtheria immunity is supposed to be for life, but a certain percentage lose their immunity after a period of about five years.

A single dose of alum precipitated toxoid has been used and reports show that immunity is conferred within two to seven weeks. The advantages are the single dose and the high per cent of immunes reported—even as high as 100 per cent. Disadvantages are cost, formation of indurated areas which take three to four weeks to absorb, sterile abscesses and occasionally high temperatures for several days.

These difficulties undoubtedly will be removed as the material is perfected. Health departments have used this material for such a short time that it is unknown how long the immunity will last but Walker reported on a series of cases in Alabama and stated that they had had immunity for over two years.

The use of Lowenstein ointment for immunization has proven disappointing as only about 50 per cent obtain immunity and for only a short time.

**Treatment of diphtheria** is by antitoxin. The earlier the diagnosis and administration of serum, the better the results, provided sufficient serum has been given to neutralize the circulating toxins. We have for several years arbitrarily used a minimum of 20,000 units preferably intramuscularly or intraperitoneally. We do not use the intravenous method as there is too much reaction in many cases, some of them alarming; there may even be death. There is always danger from the intraperitoneal injection of serum, but far less than by intravenous; the absorption is quicker than by intramuscu-

lar injection and in serious cases there is a prompt response. Subcutaneous injections of the serum are too slow. It has been proven that larger doses of serum do not do harm, but where small doses give the necessary response there is no need to waste money. The amount necessary depends upon the response. We use the same dosage regardless of the age. If there is not a definite response in at least 24 hours we repeat the dose. The concentrated serum does away with objectionable bulk in the un-concentrated.

The allergic case may need epinephrin to relieve reactions. The administration of atropin one-half hour prior to the injection of serum has been advocated and used by many. Whether it does any good is debatable but it does not seem to do harm.

There is an occasional Schick negative case with a positive throat culture which may have a membrane due to his being merely a carrier. If there is a membrane, give antitoxin the same as though the patient had never had a negative Schick or never had had the T. A. T. The Schick test might have been faulty or the material not standard due to age or too weak a dilution or a loss of potency from faulty care. In such instances, it is impossible to say whether there would or would not have been a negative test if other material had been used.

As to local treatment of diphtheria cases, we use nothing but oral hygiene with normal salt solution and dental care. There are many for and against the continuous use of local antiseptics. Many different substances have been used, and the question always comes up whether the treatment does not in some cases keep the throat so irritated as to make an ideal culture medium. A diphtheria carrier with large tonsils should have them removed—to get a negative culture.

An attack of diphtheria does not confer immunity against another attack.

**Scarlet Fever:** The following is based on a round table discussion at New Orleans by members of the American Academy of Pediatrics. The conclusions are given with comments on certain phases.

The **Dick test** is used to determine the susceptibility of an individual to scarlet fever. The absolute specificity is in doubt as some negative Dicks contract scarlet and also some who have had scarlet have a positive Dick test.

Some will have a negative Dick test at the height of scarlet fever rash when theoretically the test should be positive.

The strain of streptococci that causes scarlet one year may not be the same another year. This may account for the difference in the Dick reactions as the test materials may not be the same as that from which the patients are suffering.

Too much antiseptics in cleansing the skin will destroy the minute amount of toxin of the Dick test, also, moisture of condensation in a syringe or the alcohol with which it was sterilized, as well as the needle, may cause a negative test due to the toxin destruction. All syringes and needles should be dry sterilized.

Schultz Charlton blanching test in scarlet fever, using a commercial serum, is of no value as usually the reactions are negative. To get a positive reaction, convalescent serum must be used. A blanching or positive test is significant but a negative test does not rule out scarlet fever. In reading the Schultz Charlton test, stand at a distance rather than close up.

The immunization against scarlet fever is by the Dick toxin put out under the authority of the scarlet fever commission. There is no scarlet fever toxoid. Age is no barrier to local and constitutional reactions. Some react so severely to the toxin as to make one hesitate to recommend its universal use. If a complete course is given and there results a negative Dick test, probably the patient is immune.

Local and constitutional reactions vary from mild to severe.

The conference concludes:

"We do not feel that the procedure should be adopted as a Public Health measure since further work will have to be done to create a more innocuous product."

The immunization may protect a person from the rash but not against his harboring streptococci in his throat.

"Because so few people contract scarlet fever anyway unless directly and intimately exposed, because even then the contagious index is low, because of the fact that the therapeutic sera sensitize to horse serum and finally because we do not feel that there has been sufficient data of a conclusive nature to prove that there is protection established by the injection of scarlet fever anti-toxin, we feel that the prophylactic use of scarlet fever anti-toxin is not to be recommended. If passive immunization has to be employed, we feel that it should be with convalescent scarlet fever serum."

"We think that the active immunization is a valuable procedure but is limited in its general application because of the marked symptoms that accompany the procedure. Because of this, we feel that it should be used only to immunize individuals



who are intimately exposed to the disease. We believe that passive immunization with the use of scarlet fever anti-toxins in susceptibles is a procedure not yet justified either from the evidence in the literature or from our own experience and finally it is not justified since it may sensitize individuals to horse serum."

"It is common opinion, and it is our experience likewise, that there are more reactions after the injection of scarlet fever anti-toxin than there are after injections of any other type of serum. Just why this is so, we do not know."

"Admitting all the advantages that various individuals claim, we still do not feel that there is reason for injecting every patient with serum. The evidence obtained from the literature does not warrant concluding that scarlet fever anti-toxin has proved of 'inestimable value' in the treatment of this disease and we would not recommend it in the ordinary mild or moderately severely ill case. If given at all, it would only be to the strictly toxic patient in the hope that it might do some good . . . even here convalescent scarlet fever serum, a homologous serum, accomplishes more beneficial results."

Even in the case of exposed individuals, it is not recommended to give the doses for active immunization because they might be given with the patients in the incubation period of the disease which might be aggravated.

As to throat cultures, the consensus of opinion is that we can not use culture methods as a means of isolation or discharge of a patient from quarantine.

The immunization of children against scarlet fever by applying one c.c. of toxin upon the nasal mucous membrane once a week for five doses is being tried out by some workers. They have been getting a high degree of immunity with very slight local and constitutional reactions. The dosage is usually twice the average skin test dose<sup>5</sup>. Children rarely have reaction.

**Small-Pox:** The relation of small-pox morbidity in those states with compulsory vaccination laws is well summarized by Woodward<sup>6</sup>. Over the ten year period of 1919 to 1928: 10 states with compulsory vaccination—32¼ million pop.—had 6.6 per 100,000; six states with local option—18 million—had 51.3 per 100,000; 29 states no vac. laws—60 million—66.7 per 100,000; and four states with compulsory vac. prohibited by law—million—115.2 per 100,000. For the above 10 year period there were 35,532 cases of small-pox or a rate of 78.2 per 100,000 population.

In the states with compulsory vaccination the cases ran from 1.0 per 100,000 population to 37.4 or an average of 6.6 per 100,000. This speaks for itself. There is no need to discuss

this valuable measure to prevent one of the most serious and disfiguring diseases.

As to the technique of immunization we use the multiple puncture method while others use the burr method. The intradermal method has not received favorable reception. The skin is cleansed with ether or acetone, or in some cases only soap and water and thoroughly dried. After the material is placed and the puncture done, wait a few minutes for absorption then cover with sterile gauze.

The gauze is removed the next day and no dressing applied until the vaccination starts to take. Then have the mother wipe the lesion daily with alcohol and cover with dry sterile gauze. If any gauze sticks remove it gently with alcohol. This allows the wound to keep a dry scab and when the scab falls off there is only a small pit well epithelized. No large dressings or impervious coverings are allowed as these macerate the tissues and allow infection. The U. S. P. H. authorities recommend no dressing. We find children tend to scratch the wound unless a light covering is used. The wiping with alcohol, however, keeps the wound so there is little itching.

In the treatment of small-pox we recommend open air treatment and mild antiseptics, taking particular care of the eyes. The air treatment seems to prevent deep infections and less itching and pocking.

**Polio-myelitis** is present in all communities to a greater or lesser extent. Usually it is endemic but occasionally is epidemic. Certain geographical areas seem to be more predisposed to this disease than are others. Strangely it is predominant along the large bodies of water rather than the inland areas and more in the temperate than in the tropical regions. It is essentially a disease of childhood although it occurs in adults. There are undoubtedly many more cases of the abortive type than of the paralytic or meningitic type. Unless one is alert in doing physical examinations the occasional sporadic case may escape detection until muscle weakness or paralysis develops. The period of incubation is seven to 10 days and the onset is usually ushered in with headache, more or less sore throat, stiffness of the neck and possibly of the back, vomiting, usually constipation, and on checking the muscle reflexes there is usually a definite diminution of the deep reflexes. During an epidemic it is

not always necessary to do a lumbar puncture to confirm the diagnosis but with the sporadic case this may be necessary. In the spinal fluid, if there is an increase of cells, particularly lymphocytes over 10 to the cm. together with the aforementioned clinical findings, the diagnosis is fairly conclusive.

Treatment with pooled convalescent human blood serum is recommended—used intravenously and intramuscularly in doses of from 30 to 60 c.c., repeated in 12 to 24 hours if no lessening of clinical symptoms.

The value of serum is questioned by many; the use of the serum after the paralysis has set in is not considered of value. Regardless of the arguments for or against the use of the serum, it is recommended where available. If it is not available, it may be practical to give 60 to 100 c.c. of whole blood intramuscularly from a person who is known to be free of syphilis; typing is not necessary. The use of direct blood transfusions from a known poliomyelitis convalescent into a patient after proper grouping has been recommended and used by some authorities with considerable success but this requires suitable hospital and laboratory facilities.

Pooled adult serum, regardless of whether the persons have had poliomyelitis or not, where the donors are Wassermann free, has been recommended and extensively used. It is questionable whether the convalescent serum does any more good than the ordinary pooled serum but so far these remedies are the only ones that we have that are of value.

The use of animal serum has not been proven. Goat's serum, from animals immunized by the proper technique, has been used with apparent success in a limited number of cases but this work is purely experimental. Its use is not urged above that of the human convalescent serum. The other types of poliomyelitis serum made from immunizing animals have not been proven though they have been used by many.

It is to be remembered that many poliomyelitis cases recover regardless of treatment with a minimum of muscle weakness or paralysis.

Orthopedic care is essential in all cases with any signs of muscle weakness. Muscle checks on all cases of known and suspected poliomyelitis should be done after the individual has convalesced.

The period of quarantine should be at least three weeks and all contacts should be kept in quarantine for the same length of time.

The patients should keep out of swimming pools, and should not use aqueous or oily sprays in the nose to wash out the protective mucus from the nose.

As to prophylactic use of vaccine, the following by Maurice Brodie:

"However, the incidence of the disease is so low and the preparation of the vaccine so expensive that its application is limited. It has been found that not only convalescents, but also many normal children, even in the susceptible age group, have antiviral substances in their blood. Vaccination should be limited to those without any antibody."

**Measles:** In 1918 Nicolle and Conseil recommended convalescent serum to prevent and modify this disease. Serum must be given in the first five days of the incubation period for prevention and not later than the seventh day for attenuation of the disease. The dose recommended is five to eight c.c. The difficulty in obtaining serum led to the use of whole adult blood, preferably of one who had had the disease. One or other parent usually is available. It is not necessary to group the blood as it is injected intramuscularly (first done by Reitschel in 1921). We use the citrated whole blood and give one injection any time up to the seventh day after exposure. Some advocate 30 c.c. of the whole blood but we have had as good results with 20 c.c. Convalescent serum is best from a patient who has been afebrile 10 to 30 days. Placental extract has been used to prevent and modify measles. The work at present is purely experimental. Whether or not the placenta of animals can be used is unknown.

Second infections with measles do not occur; so-called second and third attacks are usually something else.

**Epidemic Cerebrospinal Meningitis,** which formerly had a mortality of 85 per cent, has been brought under control since Flexner introduced the use of antimeningococcic serum many years ago. The technique of treatment has advanced almost to a routine. The following is the technique that is recommended and is fairly standard: Do a lumbar puncture; if the fluid is cloudy, even if not examined at once, inject the warmed antimeningococcic serum by the gravity method, the dose being a trifle less than what was removed; study fluid for the type of organisms; repeat lumbar puncture every 24 hours; inject serum daily so long as



organisms are in smears or cultures; two successive smears or cultures free is evidence of sufficient serum; from four doses up, is the rule—even to 20; if the patient is toxic and there is a rash, it may be wise to inject serum intravenously or intramuscularly (we frequently use the intraperitoneal route in preference to the intravenous); cisternal or ventricular punctures are not recommended for the average man unless he is acquainted with the proper technique; if results from a serum are not satisfactory, use serum of another firm (we prefer a polyvalent serum).

In a recent number of the *J.A.M.A.*<sup>80</sup> Hoyne of Chicago recommends the use of a meningococcic antitoxin by the process of Ferry in the treatment of meningitis and claims an unusually low mortality over a period of two years in the Cook County Hospital. The work, of course, is too new to pass judgment upon but should be watched.

In our local General Hospital the method of choice is the administration of one part of human blood serum to 10 parts of antimeningococcic serum—with a low mortality.

Lumbar puncture may be done every eight, 12, or 24 hours depending upon the severity of the case, intracranial pressure and if it seems necessary administer serum that often.

Inasmuch as many of the cases have a general systemic infection with the meningococcus it may be wise to give an intramuscular or intraperitoneal injection, but usually only once.

These cases are best treated in an institution where it is possible to have the use of a laboratory to test the slides and cultures daily.

There is no prophylaxis except isolation of the patients.

**Typhoid Fever:** For prophylaxis three weekly injections of the triple vaccine of typhoid, para-A and B are recommended. For infants and very young children, the first dose is usually one-half to two-thirds the adult dose, and the next two doses depend upon the reaction from the first. The immunity is supposed to be for three years but has been found to last six years according to Sippy in the San Joaquin district of California.

Don't starve the typhoid patient.

The use of a bacteriophage in the treatment of typhoid is recommended at the Highland Hospital in Oakland. We can not recommend the intravenous administration as they do, but

think it might be of value possibly if given subcutaneously. Oral use is safe.

Prophylaxis in the form of hygiene and sanitation, care in handling milk and other foods and care in water supply is more important than vaccine. Educate the public on the mode of transmission by "food, fingers and flies" as was taught years ago.

Watch out for the typhoid carrier, especially in food handlers, such as, cooks and dairymen.

**Pertussis:** The use of convalescent serum or whole blood in modifying the disease has been recommended but we have had no experience with either.

Frawley of Fresno recently used the Kreuger undenatured bacterial antigen for prophylaxis, giving a series of seven doses—a total of 13 c.c.—over a period of two weeks and claims to have had satisfactory results in obtaining a high percentage of immunes in children later exposed to pertussis. He has used the same material for treatment and claims satisfactory results. For the past seven years Sauer has used his bacterial vaccine giving two c.c. doses weekly for three or four weeks and has had a high percentage of immunes among children later exposed. He claims that the immunized among his earlier series have gone through several years of exposure without contracting the disease. The disadvantage of his method is merely the local reaction and occasionally slight systemic reactions. With the Frawley method local and systemic reactions are supposed to be practically nil.

In the treatment of pertussis either the Frawley material or the old standard preparation of the concentrated bacillus of Bordet-Gengou, in the dosage of 0.5 c.c., 0.1 c.c., and 1.5 c.c. every two or three days may be used, accompanied by quartz light treatments. Some men report excellent results in a shortening of the duration of the disease and modification of the severity of the paroxysms. Medicinal treatment has been varied. Numerous sedatives have been recommended but the old Osler statement of "six weeks and a bottle of paregoric" is as true today as when uttered. The majority of the sedatives contain an opiate but recently a gold tribromide has been recommended and in some instances proven efficacious. Ether in oil by rectum has, also, proven valuable.

The best way to handle these children is to immunize by either the Sauer or the Frawley

method and urge upon parents to keep their children who are suffering from the disease away from those who have not had it, particularly during the first six weeks of the coughing. The plate method of testing has shown that after six weeks the organism is usually absent. Some children will cough for weeks after all danger of infection is past.

One attack usually immunizes for life but occasionally a mother or grandmother will contract the disease although they had it when young.

**Chicken-Pox (Varicella):** Lewis and Barenberg<sup>10</sup> report that 30 c.c. of whole blood from a convalescent from chicken-pox injected into an exposed infant will modify the disease while 40 c.c. will apparently immunize, providing the blood is injected before the end of the first week of exposure. Older children require larger doses. We have no personal experience with this. The disease is usually so mild that no prophylaxis seems necessary, let alone the treatment with blood.

Chicken-pox does not re-occur and vaccination against small-pox does not immunize against chicken-pox.

The complications that may occur are nephritis and occasionally encephalitis.

**Mumps:** A. F. Hess in 1915 first used mumps convalescent serum—three to four c.c. intramuscularly—with good results. He had no cases of the disease in those protected though exposed.

Barenberg in 1931 used 12 c.c. of whole blood or five c.c. of the serum with good results. Where the protected child developed the disease it was milder than usual. For complete protection Barenberg and Lewis recommend 12 to 15 c.c. of convalescent serum. Their experience with whole blood was not satisfactory, they think 30 c.c. of whole blood would be necessary to get results.

An attack, especially of bilateral mumps, gives life immunity.

**In Conclusion:** Study all ill children stripped. Examine all eruptions carefully. When in doubt call for consultation and your health officer should be the man on whom to depend.

We have not discussed German measles, influenza or encephalitis, as there is no prophylaxis for these and they require only symptomatic treatment.

Prevent by proper prophylaxis all prevent-

able conditions; prophylaxis is cheaper in every way than treatment.

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## AVULSION OF THE TIBIAL TUBERCLE

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Fracture with complete avulsion of the tibial tubercle is a rare condition and reported cases are infrequent in the literature. The condition is most frequent in stout athletic boys. Avulsion may be brought about by direct or indirect violence usually from a fall where the weight falls on the lower extremity with violent contraction of the quadriceps muscle. This was what happened apparently in the case reported in this article.

The history and physical signs should aid the examiner in making a diagnosis. The x-ray will give positive proof, especially if there is marked avulsion. Disability is limited to extension which can be done only upon extreme exertion, the non-affected vasti muscle fibres being brought into use. It is well to x-ray both knees, especially where the separation of the lower and anterior lip of the epiphysis or the



tibial tubercle is slight, in order to make comparison.

The tibial tubercle develops from a tongue-like process of the lower and anterior portion of the epiphysis descending over the diaphysis. Sometimes an independent center for the tu-



Fig. 1. X-ray taken on day of accident showing avulsion of tibial tubercle.

bercle appears about the 11th or 12th year, rapidly joining with the already well-developed mass of the rest of the epiphysis. Complete fusion between the proximal epiphysis and the shaft does not take place until the 20th to 24th year<sup>1</sup>. During the period of adolescence the tubercle is separated from the shaft by a layer of cartilage<sup>2</sup>. The ultimate insertion of the quadriceps femoris muscle is into the tubercle of the tibia by means of the patella tendon. The vasti muscles in addition are connected with the collateral ligaments of the patella, attached to the condyles of the tibia.

Partial separation or a sprain of the tibial tubercle is a distinct pathological condition and should not be confused with the cases of complete avulsion. This condition was first described by Osgood<sup>3</sup> and Schlatter<sup>4</sup> in 1903 and has since been known as Osgood-Schlatter's disease. It usually occurs in adolescence between the ages of 10 and 15 and most frequently in muscular athletic boys. The separation is usually of gradual onset and is characterized by pain, tenderness and swelling in the region of the tibial tubercle. Medical attention may not be sought for some time as the separation is not complete. An explanation for this condition may be found in the powerful pull of the quadriceps muscle on the tubercle at an age when it is undeveloped and insecurely fastened

to the tibial shaft, being separated from it, by an interposing plate of cartilage so that any excessive strain that might be caused by sudden exertion or violent contraction of the well-developed quadriceps of a young athlete, might readily avulse the tibial tubercle or pry loose the epiphysis with its beak.

**Treatment:** If there is not much retraction of the tibial tubercle as shown by x-ray examination and if it can be palpated and replaced, strapping and immobilization with the leg in an extended position may effect a complete cure. The prognosis in these cases is good and treatment takes from six weeks to six months. If the retraction of the tubercle is great (as is the case reported in this paper) and there is considerable swelling, it is the opinion of most writers that these cases should be operated.

The following case is reported because of the rarity with which these cases are seen:

White male, 19, laborer in C.C.C. camp. The patient had always been in good health. He is muscular and well-developed. His weight is 135 pounds and height is 67 inches. The general physical examination showed nothing of interest aside from the injury to the right knee.

At noon, on September 13, 1934, the patient was getting out of the back of a truck. He stepped on the fender, slipped and fell to the

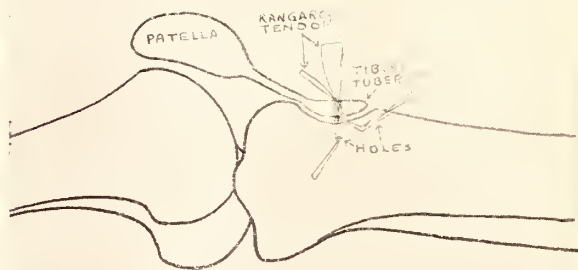


Fig. 2. Diagram showing the tibial tubercle after it had been replaced in position. The Kangaroo tendon is shown in the holes in the tibia and the tibial tubercle ready to be tied.

ground, landing on his right foot with the leg flexed. His leg gave way and he fell to the ground and as he was not able to use it he was brought to the hospital at Fort Stanton, New Mexico.

The patient complained of severe pain in his

right knee intensified by passive motion. He was unable to extend the leg. There was no shortening, neither was there any inward or outward rotation of the leg. The patella was displaced upwards (Fig. 1) with considerable swelling and tenderness over the knee.

The operation was deferred 15 days on account of the marked swelling. During this time the patient ran a daily temperature from 37.4 to 38.1 C., receding almost to normal prior to the operation. An operation was performed on September 28, 1934 under ether. A U-shaped incision was made, the lower border of which was over the tibia just below the site from which the tubercle was torn loose. There was free fluid and old blood in the soft tissues. No pus was in the wound. The hole in the tibia at the site of the fracture, and the posterior sur-



Fig. 3. X-ray taken 5 months after accident, showing tibial tubercle in its normal position with bony union.

face of the tibial tubercle was curetted. The tubercle was placed in position and held by interrupted sutures of kangaroo tendon, taken through the soft tissues of the tubercle and the tibia. With the leg in extension a posterior plaster splint was applied to the leg and thigh. The leg was elevated in the bed to relax the quadriceps muscle. X-ray pictures taken in October—the last one on October 20—showed bony union between the tubercle and the tibia. His progress was satisfactory. In the latter part of November and the early part of December, he was walking with the aid of crutches and was able to extend the leg. Passive motion on November 13 gave about 20 degrees flexion. Treatment consisted of massage and sun baths.

On December seven, about nine weeks after the operation, the patient slipped on a floor and injured the knee again. X-ray showed avulsion of the tibial tubercle for the second time.

A second operation was performed—under spinal anesthesia. A U-shaped incision was made in the line of the old scar. The fractured surfaces of the tibial tubercle and of the tibia were curetted. A hole was drilled through the middle of the tubercle. Two holes were drilled through the tibia into the site of the fracture. (Fig. 2) One was just below and the other just medial to the fractured site. Kangaroo tendon was brought through these two holes and then through the one hole in the tubercle. The tubercle was pulled into position and tied with the tendon (Fig. 2). A posterior splint was applied to the leg and lower thigh. The leg was then elevated to relax any pull from the quadriceps muscle on the tibial tubercle.

The position of the tubercle as shown by x-ray is now good and there is bony union between it and the tibia (Fig. 3). The patient began walking on the injured leg, with the aid of crutches, about seven weeks after the second operation. He was able to slightly extend the leg.

At time of discharge from the hospital about three and one-half months after the second operation he was able to walk unassisted. The leg then showed about 80 degrees flexion, which it is believed will be increased.

Conclusions: Complete avulsion of the tibial tubercle is rare. Operation is usually necessary.

Osgood-Schlatter's disease is most often found in adolescence in muscular athletic boys. There is a sprain or partial separation of the tibial tubercle. This condition can usually be remedied by strapping and immobilization of the leg.

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## THE MANAGEMENT OF PERITONITIS—BASED ON NEW CONCEPTIONS

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(Read before the Dallas County Medical Society, Dallas, Texas, and the New Mexico, May 23 to 25, 1935.)

Peritonitis has been one of the feared causes of death following operations upon abdominal viscera, or following perforation or other injury of an abdominal viscus. Recent experimental studies have raised the question whether it is peritonitis, as such, that we should fear, or a toxemia in which peritonitis is only the evidence of a defensive mechanism of the peritoneum. If all the defensive mechanisms of the body are available, spilling of intestinal contents in the abdominal cavity may not be the serious affair we have been led to believe. If the defensive mechanisms are not all available, such spilling, even if minute, may be the instigator which sets in motion the necessary development of a fatal toxemia associated with peritonitis. Bacteria, such as streptococci and colon bacilli, are always present in the walls of the intestine about a neoplasm which has invaded the wall of that portion of the intestine. These bacteria multiply and spread rapidly in the absence of adequate defense, and cause the real damage. If unusual dissemination of these bacteria with resulting peritoneal irritation occurs, and if adequate cellular reaction is not at hand, splinting and distention of the intestine, and retention of toxins follow. Elaboration of poisonous toxins then ensues, and if the process cannot be reversed in time, death associated with peritonitis will follow.

Herrmann, working on this problem, under Mann, in 1927, at The Mayo Clinic, produced peritonitis in rabbits and dogs, by the intraperitoneal injection of colon bacilli and streptococci. He found that the development of peritonitis depended on the presence of immunity. Peritonitis, he postulated, was a defensive reaction of the tissue; the form of immunity

which determined peritonitis was a local immunity of the peritoneum. He expressed the opinion that sufficient immunity would prevent peritonitis entirely, and bacteria would be destroyed rapidly and completely in the animal which was immune. Without immunization against the prevailing bacteria, that is, streptococci and colon bacilli, peritonitis would result in death from acute sepsis, and there would be little or no peritoneal reaction. If animals, which did not receive injections of vaccine, received lethal amounts of virulent cultures of these bacteria, they all succumbed to a generalized peritoneal infection. He also found that if a vaccine, which was prepared from colon bacilli and streptococci, was injected peritoneally, operations, such as resection of the intestine could be carried out almost with impunity and without the fatality associated with peritonitis; whereas, if such operations were performed without the administration of vaccine, the mortality associated with peritonitis was high.

Men have been studying the nature and prevention of peritonitis for many years. The work of Dragstedt of Chicago, and of Burget of Portland, Oregon, while it may not have been aimed directly toward a solution of this problem, offers clues for further study. These investigators isolated loops of intestine in the dog, closing off both ends and fastening the lips to the anterior abdominal wall. The lumen of the intestine, from which such a loop was isolated, was reestablished by end-to-end anastomosis. The continuity of the focal stream was thus maintained but a portion of the intestine was isolated in such a manner that that which formed in this loop could not be evacuated by the animal. Within a short time after such a loop was emptied and following the recovery of the dog, it filled up with a dirty gray-brown material which contained innumerable bacteria. If nothing was done about this, severe toxemia developed, and the dog died. If the loop was emptied periodically by needle aspiration through the abdominal wall, complete relief of all symptoms of toxemia resulted, and the dog remained well.

With the development of toxines, associated with peritonitis the result of paralytic ileus, there is complete stasis of the intestinal content, and serious intoxication. In such a tox-

emia, all available protective mechanisms of the body will at once be called on.

Interesting experiments have been carried out in an effort to evaluate these bodily defenses. Studies of the peritoneum and the peritoneal fluid, particularly with reference to their reaction to infection and sterile foreign matter, have been most fruitful. A small amount of free fluid normally is present in the peritoneal cavities of man and of experimental animals. It has been described as a lubricant, but comparatively little attention has been given to its cellular structure until recently.

Maximow described the cells commonly found in the peritoneal fluid, but their variation in different animals and under different physiologic conditions has been studied only recently by Montgomery. He found that the number of cells in the peritoneal fluid of various animals, such as the white rat, white mouse, guinea pig, swine, dog, and horse, varied with the age of the animal. Others have observed that peritonitis is less likely to affect animals, such as white rats, in which the cellular count of the peritoneal fluid is high, than it is to affect those animals which disclose a comparatively low cellular count and which normally have a low resistance to peritonitis.

Durham, in 1897, carried out experiments with guinea pigs, for the purpose of studying the reaction of the peritoneum to infection. He summarized the findings by saying that a leukopenia in the peritoneal fluid followed immediately the injection of killed bacteria. This condition was soon followed by a polymorphonuclear leukocytosis, and the predominating cell later was found to be a macrophage (monocyte).

The observations of Durham have been substantiated by Witts, and by Morton. The latter investigator demonstrated that if a filtrate of hemolytic streptococci, which first had been rendered sterile by passage through a Berkefeld filter, was injected into the peritoneal cavity of rabbits, death invariably occurred within a few hours. If the filtrate was boiled for thirty minutes and then injected into the peritoneal cavity of rabbits, immunization against subsequent intraperitoneal infections with hemolytic streptococci invariably ensued. These experiments were repeated by using sterile solutions of dextrose, and dextrose in physiologic saline solution. Surprisingly enough,

the animals also were found to be immune to subsequent intraperitoneal injections of hemolytic streptococci. A differential count of the cells of the peritoneal fluid disclosed that, at the height of immunization, the monocyte was the predominating cell and that it had replaced the polymorphonuclear leukocyte to a great extent. Morton then attempted to determine, if possible, the phagocytic action of the monocyte. It was found that the peritoneal fluid and omentum of animals, which apparently had been immunized against intraperitoneal infections, contained numerous large mononuclear cells (monocytes). The peritoneal fluid and the omentum of animals, which succumbed to the intraperitoneal injection of a bacterial filtrate, were found to contain very few monocytes, but a large number of polymorphonuclear leukocytes. Morton therefore concluded that the monocyte was definitely more phagocytic than was the polymorphonuclear leukocyte, and he also expressed the opinion that immunity to peritonitis might be established by inert substances.

Goldblatt and Steinberg were able to produce active immunization against bacillus coli peritonitis of dogs by the intraperitoneal or subcutaneous injections of killed colon bacilli. The animals remained immune to peritonitis from this organism for three months.

David, in 1927, studied experimental peritonitis of dogs. He demonstrated that colon bacilli passed directly from the peritoneum to the blood stream and to the lymphatics. If plastic peritonitis was first produced by the intraperitoneal injection of an emulsion of turpentine, colon bacilli that were injected into the peritoneal cavity could not be recovered from the blood stream or from the thoracic duct. A repetition of the experiment, following the production of a low-grade peritonitis, occasionally did show colon bacilli in the lymphatics, but rarely were organisms recovered from the blood stream. By analogy, he concluded that if death resulted from a well-developed peritonitis, its cause could not be attributed to septicemia. While this mooted question may not yet be answered, our clinical observations thus far bear out David's experimental findings, by the fact that repeated blood cultures in cases of fatal peritonitis invariably have been negative.

Rixford and Dixon, in 1934, studied the



cytology of the peritoneal fluid of man. They endeavored to determine the normal cellular structure and also the variations which occurred after the intraperitoneal administration of vaccines which were made of colon bacillus and streptococcus. The method of obtaining the fluid has been fully described in a previous publication. Suffice it to say that the normal peritoneal fluid of man contains in the neighborhood of 2300 leukocytes per cubic millimeter. About 45 per cent of these are histiocytes (monocytes); very few are eosinophils and basophils, and many are lymphocytes. After the intraperitoneal injection of vaccine, the total cell count is increased at least tenfold. At first, there is an increase in the neutrophils; later, there is a marked increase in the histiocytes (monocytes). These investigators expressed the opinion that at least a part of the protection against peritonitis, which results from the use of vaccine, was the result of non-specific production of phagocytosis, which was caused by an increase in the number of monocytes.

Sistrunk observed early that patients who were filled, so to speak, with carbohydrates and who had empty intestines were much better risks for intestinal operations than were patients who had not been subjected to this preparation. The work of Hermann, particularly, as well as the early observations of Sistrunk, and these studies of the peritoneal cellular reaction, form the basis of our management of the patient in whom peritonitis is likely to occur.

So striking were the results of the experimental work that we decided to vaccinate patients before they were subjected to resection of the colon, in order to prevent postoperative peritonitis. Bargen has found that the organisms, which were most prevalent in the abdomens of individuals who had succumbed to peritonitis following colonic operations, were colon bacilli and streptococci. A vaccine, which has been prepared from these organisms, has been injected intraperitoneally three days before patients have been subjected to intestinal resection. The materials which are required for such a procedure are a dull-pointed spinal puncture needle, a 10 c.c. Luer's syringe, procaine hydrochloride for a local anesthetic, a Luer's syringe for the injection of the anesthetic, and cleansing fluids for the skin. The

injections are given directly into the peritoneal cavity by strictly aseptic technic. Since October 1, 1928, more than 1500 patients, who submitted to operations which involved the colon, have received intraperitoneal injections of this vaccine before operation, to protect them against peritonitis.

In addition to the administration of vaccine, the dietary regimen has been greatly elaborated and plays an important part in the preoperative treatment (table 1).

Since we have employed this plan of management of patients who are to undergo operations which involve the colon, the mortality from postoperative peritonitis has been reduced more than 66 per cent; that is, where we previously lost three patients from the toxemia associated with peritonitis, one, or less than one now succumbs. This decrease in mortality hardly can be considered the result of any factor other than the preoperative care. It seems that in those cases in which fatalities with peritonitis now develop, the offending organisms are virulent types of streptococci, the exact nature of which we have not yet been able to determine. During the first three months of 1935, 102 patients, who had major diseases of the colon requiring resection, have been prepared and subjected to operation at the clinic without a death from peritonitis. We have made careful study of the reactions which have followed the injection of the vaccine. In all instances, a sharp elevation of temperature occurs; this ranges up to 102° F., and occasionally higher. In cases in which there is neoplasm of the colon, which has caused perforation of the intestine, or which has metastasized, the temperature curve is almost diagnostic if the patient has received an intraperitoneal injection of vaccine. The temperature recedes in a gyrating fashion and returns to normal 24 to 36 hours after the injection of the vaccine.

We are convinced that intraperitoneal vaccination against peritonitis, in addition to the other phases of the preoperative management, has appreciably reduced the death rate associated with peritonitis. It seems to us that further study will be necessary before it can be said definitely that immunity against peritonitis can be produced by inert substances. We recently have carried out investigations in an attempt to determine whether or not the blood

serum of a patient who has received the intraperitoneal injection of the vaccine of colon bacilli and streptococci will show an agglutination of the specific organisms. Agglutination tests for streptococci are unreliable. Slight elevation of agglutinin titer against the gram-negative bacilli, however, does occur. Further studies will be necessary to determine its importance. We hope, however, to compare the efficacy of the vaccine to that of the inert substances.

Preoperative measures for the prevention of peritonitis at this time include the following:

(1) The isolation of patients, who are to undergo intestinal operations, on one floor of the hospital, under one group of nurses as a unit, and similar to the isolation of obstetric cases; (2) the administration of a diet which is rich in calories and which has the lowest possible residue; this will include a diet such as that outlined in table 1; (3) irrigations of the colon with physiological salt solution about every 12 hours for enough days prior to operation to empty the colon; (4) the liquid contents of the colon should be aspirated through the rectum or through a previously formed colostomy so that the patient will come to the operating room with an empty and dry colon; and (5) bacterin, consisting of streptococci and colon bacilli, should be injected intraperitoneally.

Other measures of prevention of death in association with peritonitis have been employed. About four years ago, Young, after observing the studies outlined here, decided to try amniotic fluid. His results in a series of 49 cases have been reported. He has been very much encouraged by its use. Our experience with this material has been limited, but so far, we have found no good reason to replace the vaccine by such substances. Our latest efforts have been directed toward the development of something which will combat the infection in that small group of patients in whom death associated with peritonitis still occurs. Weinberg, of the Pasteur Institute, has prepared two types of serum by immunizing horses, one with anerobic organisms and another by using colon bacilli. Both of these serums have had sufficient trial in the treatment of active toxemia associated with peritonitis to offer encouragement. Consequently, we have collected all of the bacteria which we could isolate from patients who have succumbed to the tox-

emia associated with peritonitis from the peritoneal fluid. Experiments are being carried out with these organisms, and horses are being immunized with them in the hope of developing a serum to combat this toxemia. It seems reasonable that such a serum may add another link in the chain of activities necessary for the management of this dreaded cause of fatality.

In addition, the other measures which we are employing meanwhile to combat the toxemia associated with peritonitis include morphine to increase intestinal tonus and to promote resumption of normal intestinal activity. This seems one of the best drugs for this purpose. In the early stage of paralytic ileus such drugs as physostigmine salicylate have been found helpful. All fluid and food are withheld by mouth. Small cup enemas of warm, stimulating solutions may be necessary. Physiologic saline solution and five to 10 per cent solutions of dextrose are administered, subcutaneously and intravenously, respectively. Supportive measures of all kinds may be added to the more specific remedies.

Table 1.  
Non-residue Diet Before Operation\*

Breakfast	
Fruit juice, any kind, 1 glass.	
Heavy cream, 4 tablespoonfuls.	
Egg, 1.	
Butter, 1 square.	
Arrowroot cookies, 2.	
Coffee.†	
9:00 a. m.	
Candy, 5 ounces, either pure sugar candy or milk chocolate without nuts.	
Dinner.	
Broth with 1 square of butter.	
Gelatin, plain, 2 heaping tablespoonfuls.	
Heavy cream, 4 tablespoonfuls.	
Fruit juice, any kind, 1 glass.	
Arrowroot cookies, 2.	
Tea or coffee.†	
3:00 p. m.	
Fruit juice, any kind, 1 glass.	
Supper.	
Broth with 1 square of butter.	
Steamed rice, 2 heaping tablespoonfuls†	
Heavy cream, 4 tablespoonfuls.	
Fruit juice, any kind, 1 glass.	
Arrowroot cookies, 2.	
Tea or coffee.†	
*Contains approximately 2,300 calories.	
†Sugar as desired for tea, coffee, and rice.	

Dr. Harry B. Gudgel gave the commencement address and delivered the diplomas at the commencement exercises of the Good Samaritan Hospital held in the Grace Baptist Church at 11th St. and McDowell Road at 8:15 o'clock, October 17, 1935.

Dr. O. B. Patton of Ajo, Arizona, was in Phoenix about the middle of October for a few days.



## TREATMENT OF DEFORMITIES OF ANTERIOR POLIOMYE- LITIS

S. L. HAAS, M. D.  
San Francisco

(Read before the New Mexico State Medical Society, at its Fifty-third Annual Session, held at Albuquerque, N.M., May 23 to 25, 1935.)

It is easier to prevent deformities in anterior poliomyelitis than to cure them. Therefore in the early parts of the paralytic stage the keeping in mind of a few principles will be of inestimable value.

In the first place deformity is usually due to two things: Poor position or contracture of strong muscles. Let us take for example a patient with complete paralyses of extremities and trunk muscles, leaving out, of course, the respiratory system. For that patient it would be necessary to assume a neutral position to protect all the muscles and prevent contracture. Thus we would have the patient lying flat on a firm mattress with a small pillow under the lumbar curve to protect the spinal muscle and prevent kyphosis or scoliosis. The arms should be kept in the position of 90 degrees abduction to protect the important abductors of the shoulder, the elbows flexed at right angles and the forearm in a position midway between pronation and supination. The lower extremities should be extended straight at the hip and knee joints and the feet at right angles to the leg. I might for instance show you what would happen if the legs were flexed at the hips at say 90 degrees if the extensor muscle were paralyzed. We would get a flexion contracture of the hip region which if allowed to go for a considerable time would become fixed and the cure would necessitate many months of treatment, with or without operation, and in the end possibly not be entirely corrected. Thus a simple precaution requiring very little effort would have prevented this deformity. The method of prevention does not necessitate any complicated apparatus; you need only to strap the arms to the top of the bed or support them on pillow splints. For the legs a simple long right angle splint made from a piece of board furnished with a foot piece

and simple padding suffices. One may use plaster of paris, metal splints or braces.

With the recovery of certain groups of muscles it may be necessary to modify the treatment, remembering that protection from stretching is of prime importance in the recovery of a paralyzed muscle. Let us take for example the simple problem of a paralysis of the extensor muscles of the wrist. The deformity is a wrist drop and if the wrist is allowed to drop the strong flexors will surely produce permanent deformity of the wrist which may be difficult to overcome if allowed to remain for a long time. Furthermore, if the wrist is flexed the extensors are on the stretch and will not have a chance to recover when the ganglion cells have recovered and nerve stimulation has been restored. A simple wrist splint is all that is necessary to prevent the deformity and allow the restoration with the healing of the nerve lesions. With the subsidence of the acute muscle tenderness one can institute massage, electric stimulation, Roentgen ray, or other forms of light therapy. I feel however that protection from stretching is over 90 per cent important. Electrical treatment is good but can be abused. It must be given by an expert as improper application may be more detrimental than useful.

The conservative treatment must be carried out for at least a year as recovery is often delayed. There have been reports of cases after two years of treatment with no, or slight, improvement in the intervals who have recovered. However I feel that such cases are few and if no changes have taken place within the year operative intervention is justified. Neglected cases with deformity which have not been treated may recover even after a number of years. Recently I saw a patient with contracture of 12 years' duration who recovered a considerable amount of muscle power when the contracture was corrected and the stretched muscle put at rest in a protected splint. After conservative treatment has been carried out for a sufficient period without recovery one may resort to operative treatment to correct the deformities and improve the conformation of the limb.

In order to obtain correction of the deformities one may resort to several methods. Simple traction may be applied by means of a

Buck's extension for hip or knee contractures. The employment of plaster either by wedging or by use of hinges and turn buckles is usually a more direct and satisfactory method. For example: If one had a contracture of the knee a plaster of paris case may be applied to the extremity after which the plaster may be cut two-thirds around its circumference and then spread apart a little. In a few days it may be spread a little more and so on to full correction. Or the plaster may be entirely cut around and a hinge placed on either side after which a turn buckle can be inserted on the side of flexion. Tightening up the turn buckle gradually each day will cause a straightening of the flexed joint. Needless to say there must be adequate precaution to prevent pressure sores. After correction is obtained it is usually necessary to protect the extremity with a brace or splint to prevent recurrence of the deformity.

Some of the methods available for helping the crippled individual will be enumerated. One must have in mind that there are innumerable limitations and barriers against the restoration of the involved parts but what may appear to be a trivial or inadequate improvement from the original may be of great value to the patient. One often has to resort to an intricate and time-consuming form of treatment to help the patient even a small amount but it may be very valuable from his or her standpoint.

A general review only of some of the operations can be presented at this time. In the upper extremity perhaps the most serious and frequent disturbance is paralysis of the deltoid muscle. The patient is unable to raise the arm from the side of the body. There are two methods of helping this condition: Muscle transplantation or arthrodesis. Each has its advantages and disadvantages. For a muscle transplantation at the shoulder region there must be one or two good available muscles such as a trapezius or a pectoralis major, also several accessory muscles to help swing the scapula and aid in movement. For an arthrodesis of the shoulder joint it is also prerequisite that there be good shoulder muscles to move the scapula. If the humerus is united to the scapula and one has not the necessary muscles to rotate the scapula as the serratus—anterior,

rhomboid and trapezius one can readily see that this would be a useless procedure. At the elbow joint the same two procedures, namely arthrodesis or transplant, are available. A useful operation is the transference of the flexor muscles higher up on the humerus making them act more as flexors of the forearm. At the wrist the desire is to obtain dorsal flexion because a wrist in the flexed position materially disturbs the function of the fingers. This one can readily see by trying to use the fingers while the wrist is flexed. The desired effect can be obtained by transplanting the flexor of the wrist into the extensor of the wrist or arthrodesing the wrist joint in the position of slight dorsal extension.

The treatment of paralysis of the fingers when extensive is not satisfactory, especially when the interossei and lumbricales are involved. There is one common lesion that is amenable to treatment; that is paralysis of opponens muscle of the thumb. It is this muscle that is so important in grasping—giving the rounded swing to the thumb. If the palmaris, flexor carpi ulnaris or flexors of the thumb are not paralyzed any of them can be utilized to help in this action. Or if none of these is present the first metacarpal can be arthrodesed to the trapezium.

In the lower extremities about the hip joint the main operation is the correction of the flexor deformity. This consists of releasing the muscles that are attached to the crest of the ilium. The muscles are stripped off and allowed to re-attach themselves at a lower level. This is the same as lengthening the muscles. For paralysis of the abductors one can transfer the tensor fascia backward or the gluteus maximus anteriorly. One can also run a piece of fascia from the erector spini to the hip to act as an extensor. Ankylosis of the hip may be performed but is not advisable.

At the knee joint for paralysis of the quadriceps one can transplant the hamstrings to the patella, either the outer or inner, with very good results. Ankylosis of the knee may at times be advisable, especially in bilateral severe involvement of both extremities, thus doing away with the use of two braces.

For paralysis of the feet one can perform a series of muscle transplants in various combinations. Muscle transplant in the feet is



usually not advisable as it often does not hold up under severe strain. In selected cases it may be efficient and useful. The most satisfactory treatment for paralysis is the stabilization operation. If one visualises the ankle joint and tarsal joints the combination consists of almost a universal joint. With our normal muscle control we involuntarily fix these joints just like the guy ropes of a tent pole. If there is a paralysis of any of the muscles then the balance is disturbed and we have an unstable foot. To appreciate this fact think of the involuntary control we have over our feet; but occasionally when this control is lost, as in stepping on a rounded object, we turn our ankles. To reduce this instability in paralysis it becomes necessary to fix these joints. The most stable foot is from an ankylosis of the ankle joint and all of the tarsal joints. The stiff ankle and tarsal joints take away all the elasticity and the foot hits hard and walking is clumsy. It has been found that most deformities of the feet can be controlled by the so-called subastragaloid and transtarsal arthrodesis. This fixes the foot below the ankle so that it remains in a relatively set position. After this operation in paralysis of the leg below the knee braces are no longer necessary. The Whitman astragalectomy, removal of the entire astragalus with displacement of the foot backward, serves the same purpose but is not so satisfactory as the Hoke stabilization.

A most difficult problem is the treatment of scoliosis of the spine so often a sequel to anterior poliomyelitis. Up to a few years ago no satisfactory way had been presented but we now have the Hibbs-Risser method. Briefly this consists of the application of a plaster jacket taking in one leg and extending up to and including part of the head. The jacket is then cut in half at the apex of the curve after which two hinges are placed, one anteriorly and one posteriorly. On the concave side a turnbuckle is incorporated in the plaster. This is gradually turned up and a definite correction is obtained. A hole is then cut in the posterior part of the plaster and a Hibbs fusion is performed fixing the spine in the corrected position.

Loss of growth in unilateral paralysis is a frequent disability. If the inequality of the two limbs is not over one and one-half inches com-

pensation for the loss may be by a suitable lift in the shoe. When there is a greater loss of growth, in order to avoid the wearing of heavy and cumbersome shoes, leg-lengthening can be satisfactorily performed. The lengthening is usually done in the tibia and fibula; femoral lengthenings are much more difficult. A simpler operation is to shorten the good leg by resection of the femur or to retard growth of the good extremity by destroying the epiphyseal plate.

This brief outline I hope will serve to give you an idea of the present acceptable methods for the treatment of permanent paralysis following anterior poliomyelitis.

It is a source of great pleasure to be able to help the crippled child, and to restore him or her as near as possible to be a normal and useful citizen.

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### NEWS ITEMS

Dr. and Mrs. A. L. Gustetter of Nogales have returned home following a short trip to Los Angeles.

Two very interesting motion pictures entitled: "Novocain in Obstetrics" and "Malaria" were shown before the Santa Cruz County Medical Society at their October meeting. These films are produced by the Winthrop Chemical Company, New York, and are well worth the consideration of any medical society. The films are furnished gratis.

A special excursion to Guaymas (Old Mexico) is being arranged by the Santa Cruz County Medical Society, following the 1936 meeting of the Arizona State Medical Association to be held in Nogales, April 23, 24, 25. The party will leave Nogales on Saturday afternoon, returning early Tuesday morning, thus affording those who make the trip two days of outing, fishing, hunting, boating, swimming, etc., at Guaymas. A twenty-dollar bill should cover all expenses per person. Full details later.

Dr. and Mrs. J. H. Woodard of Ruby have returned to their home following an enjoyable vacation to northern Arizona.

"The dead chicken won't win this time." Remember, old timers, the "cock-fight" in Nogales many years ago. Well! Get your money ready for several interesting events put on for your special entertainment during the 1936 Arizona State Medical Association meeting to be held in Nogales.

Dr. T. G. Reynolds of Esperanza, Sonora, was in Nogales recently enroute from California to his home in Mexico.

If plans do not go astray those attending the 1936 meeting in Nogales will be afforded a real pleasure in viewing quite a number of scientific and commercial exhibits. Full details later.

Dr. J. D. Hamer, President-elect of the Arizona State Medical Association, addressed the Santa Cruz County Medical Society on November 2nd. During his visit to Nogales details for the 1936 meeting was worked out. Dr. Hamer has rendered outstanding service to the profession of Arizona, so let's make the 1936 meeting the BIGGEST meeting in the history of the Association and in some manner pay Dr. Hamer a debt of gratitude which is justly his. This can only be accomplished by YOUR COOPERATION.

# Southwestern Medicine

Printed by THE A. C. TAYLOR PRINTING CO., Phoenix, Arizona  
Published monthly for the Board of Managers of the four constituent societies.

VOL. XIX.

NOVEMBER, 1935

No. 11

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## SOCIALIZED MEDICINE DEBATES

Not long ago a group of high school students called upon us seeking information on socialized medicine. The reason for their acute interest at this particular time is that they are preparing a debate upon the subject chosen for high school and collegiate debates this year throughout the United States which is: "Resolved: That the several states should enact legislation providing for a system of complete medical care available to all citizens at public expense."

Any physician may be called upon during the year by high school or college students for information upon this subject; therefore, we warn all physicians to be informed.

The American Medical Association has taken cognizance of this debate and since there will be a great demand for literature upon the socialization of medicine, the Association has prepared special pamphlets which it will distribute free to persons sufficiently interested to request them. The Maricopa County Medical Library of Phoenix and the El Paso County Medical Library have a considerable amount of material on the subject.

Debaters' hand books have already been prepared by various individuals. Probably most of these hand books present material slightly biased in favor of the affirmative even though the authors undoubtedly endeavored to be neutral.

On November 12 at two o'clock p. m. E. S. T. there will be a debate over the National Broadcast; for the affirmative, speakers are William T. Foster and Bower Aly, and for the negative Dr. R. G. Leland, director of the Bureau of Medical Economics of the American Medical Association and Dr. Morris Fishbein, editor of the Journal of the American Medical Association.

The general sentiment among the medical profession who are informed is that these debates will be of much significance and will tend to crystallize public thought for or against state medicine. There will be a large number of these young persons who certainly will have definitely crystallized ideas after they have studied the subject. The audiences who listen to the debaters may be influenced one way or the other and may come to have positive ideas upon the subject—for or against state medicine.

It would seem that the medical profession has a definite duty to perform this winter which is to discuss this problem with any of the debaters who may be seeking information.

Our reaction, after having discussed the subject with one group of students, is that in the main the students are inclined at first to see but one side of the question; and that is the affirmative. It is no use to attempt to tell the young people that there is only a negative side to the question. In discussing the subject with them we believe it is well to let them know that there are certain definite arguments for a socialized system of medicine as well as strong arguments against most systems.

Among the arguments which are used in favor of socialized medicine are: A large portion of the population does not get the medical attention that it needs because it is not able to pay for it. Illness is unpredictable. It comes as a calamity and finds a large number of families unable to bear the expense necessary to give the sick ones the proper care. Those who have the least in a financial way are apt to have the most sickness. Many who are able to pay for minor illnesses find themselves completely swamped with expense by prolonged illnesses. The proponents say that there is no more reason why illnesses should not be paid



for through mutualization of cost than there is that fire losses or various other property catastrophies should not be paid for by insurance funds. They say further that public health is a public concern and that there is no more reason why therapeutics should not be handled by the Government than there is that prevention should not be of Government concern.

They say further, that reform within any profession or group of individuals usually has to come from without. As an example, they point to the fact economists rather than bankers had to write and obtain legislation for the Federal Reserve System and though the bankers were last to act they now would not consider abandoning the Federal Reserve System.

Proponents of socialized medicine say further that it has ever been thus with reforms within large professional groups. They say that the legal profession will have to have outside help in order to reform the United States judicial system. They say that our profession is lethargic, that we are too well satisfied with the present system and cannot be aroused to do anything toward getting a better one.

They say that when the reform comes that the profession will be satisfied with it and will never under any circumstance be persuaded to change back to the present archaic system. There is the further argument that many of the medical men of today are not being properly remunerated for their services; it is only the fortunate few with rich clienteles who have incomes commensurate with the average physicians' training and dignity.

The proponents say further that the type of change which is to come should rest largely with the paying public who should have the final vote as to when, what, how, and who shall be paid for medical services. They say too, that the medical profession should be guiding the changes which are coming and should not sit idly in a self-contented manner. They point to the changes which have already come and say they are not as good as they should be because the medical profession manifested no interest in the changes.

A large amount of medical work has already been appropriated by the state and nation. Seventy-three per cent of the hospital beds of the nation are supplied by public funds. Consider the Veterans' Bureau hospitals and patients, the state insanity and tuberculosis hos-

pitals and patients, and the county and city hospitals and patients.

They say further that the arguments which the medical profession uses against the proposed changes are weak and scarcely up to the dignity of the profession.

The opponents of state medicine say that unquestionably certain claims made by the proponents are entirely correct and truthful, but that they fail to take into consideration certain important features and possibilities of human psychology, of wasted money, of excessive taxes, of crooked politicians, of stunted medical progress, of getting into a bad mess and not being able to get out, of having an increased amount of sickness instead of less, and of many other dangers.

Had even one of the European socialized systems of medical practice reduced the amount of sickness or lowered the death rate of that nation there is no question but what the American physicians and people would be ready—willingly ready—to adapt and adopt that system for our own use.

In the next place there is not the urgency for a change in the system of medical practice in this country that there was in European countries when they adopted socialized systems of medical practice. The standard of medical attention given our indigents and our low income groups has never been surpassed and probably never equalled in any other nation.

Of all the schemes of socialized medicine for this nation none takes into consideration the one group which now gets the least medical attention—the indigents, and those whose incomes are barely above the starvation level. The usual scheme provides that those who can shall pay a certain amount of their incomes into a common fund, the government will then add a sum in proportion, the whole amount will be turned over to the politicians, and from this point on it is hard to tell where we go or what the plans embody.

In any plan whether it is State Insurance or other method for mutualization of cost, the psychology of patients and of physicians must be taken into consideration. There is the old adage which in a measure applies about a free horse being ridden to death. It is said that there is a real danger that patients will call the physicians times without number for illnesses that are of no concern—perhaps mostly for

imaginary illnesses until the public will become a mass of hypochondriacs. Those of us who have had much experience in connection with medical schools know the state of mind of the sophomore and junior medical students when they first get real contact with sick people; in their imagination they have tuberculosis, syphilis, malta fever, heart disease, locomotor ataxia, and nearly every disease they study. The medical students, however, soon get upon an even keel about their supposed diseases. The lay persons who get introspective ideas of diseases and their own bodies are truly to be pitied, and become an extremely difficult problem to deal with. When doctors' offices become infested with a considerable number of hypochondriacs even though they may pay the doctors' office rents life is truly miserable for physicians as well as for that particular group of patients. Were a doctor compelled to see such patients all day long without opportunity and privilege of sending them statements of the amount due at the end of the month, we would fear for that physician's sanity. The upshot of this influence would be that physicians would become so pestered with hypochondriacs that they would suspect all patients that presented themselves for treatment of being hypochondriacs and might possibly and often very likely would fail to give care to the occasional really sick ones mixed in with the mentally worried ones. Let those who doubt this statement visit the county physician's office under the present regime in almost any place in the southwest. This psychologic factor is not to be dismissed too lightly. The English Panel physician regularly sees his panel patients—50 to 60 daily perhaps, in about an hour—at the rate of about one a minute. This fact speaks volumes for the seriousness of this very question of imaginary illness.

Even without graft the cost of medical care to the public must needs be tremendously increased in any plan of state medicine as the large administrative forces would have to be paid—in addition to all that is now being paid.

None of the schemes yet proposed offers any plan for the elimination of the substandard practitioner and patent medicine evils and other elements racketeering upon the unfortunates.

It is certain that every plan of state or so-

cialized medicine now in force in any nation is faulty. None is perfect. None has done what should rightfully be expected of it.

Various medical organizations throughout the United States are trying out plans of various sorts. Out of these will come a truly American plan, or plans that may have opportunities of doing what the altruistic proponents of state medicine actually hope for.

Our own viewpoint is that we are heading for a change in our present system of practice. Just what that change will be, it seems impossible to predict. We are inclined to believe that the San Diego plan as now adopted and modified by several city and county medical societies comes the nearest of being the ideal of any that has been suggested.

We believe that every medical organization should have a committee of its strongest and most active members actively studying this problem from every angle. We believe it is up to the medical profession to see that the highest type of medical service is given to our public. We believe we should think of the indigents as well as of the low income group. We believe that our services are not more important to the health and welfare of the people than are the grocers' products, but that we are on a different level than are grocers; theirs is a business; ours is a profession; more is expected of us. It seems to us that unless we solve this problem and do it in the near future that the public will solve it for us, and their solution will certainly not be altogether satisfactory to us.

We believe that the providing of a day's work to any person able and willing to work in order that he may purchase his necessities of life, including medical attention, will go far toward rendering a Socialized System of Medicine unnecessary or at least inadvisable until we know that the right type has been found.

We believe the day's work should be found in private industry and if not to be found there it should be available at all times and in all localities under Government provision; if nothing more useful can be found, let our Government use the laborer that needs money for necessities in building mountains, carrying back mountain soil from the valleys, to save us from having a completely flat earth. Jobs and the money therefor are needed more than socialized medicine.



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## ATTENTION! PHYSICIANS AND SURGEONS OF THE SOUTHWEST

A most cordial invitation is extended to you to be present at the 22nd Annual Clinical Conference of the Medical and Surgical Association of the Southwest, to be held in El Paso, Texas, on November 21, 22 and 23.

Had I the authority, I would command you to be there; but not having it, I can only request your presence and trust that all you who possibly can will attend.

If you have not looked over the program carefully, as published in the October issue of *Southwestern Medicine*, kindly do so at once and I am sure you will agree with me, that it is going to be a most interesting and instructive meeting. You will note that the speakers on the program are eminent men from outside our district, all recognized as leaders in their respective fields. They will appear repeatedly on the program on various subjects and will be there to conduct clinics and round table discussions. Everyone will benefit by attending this meeting. This will be a real post-graduate course. Come!

Our association is attempting to establish this type of clinical conference, bigger and better each year, and we earnestly solicit your support, cooperation, and attendance.

All reputable physicians of the Southwest, whether members of local societies or not, are cordially invited to attend.

The Women's Auxiliary of El Paso County Medical Society is making special arrangements to entertain the visiting ladies, so be sure to bring them along.

C. R. SWACKHAMER,

1st Vice President and  
Acting President.

## Medical Society of the District of Columbia Has Definite Medical Economics Program.

The Medical Society of the District of Columbia has been working almost continuously for the past three years on various aspects of the economic and social problems of medicine. Progress has been made along the following lines:

1. The membership of the Society has been kept interested and informed on social-economic questions with the result that the Society has invariably supported the plans of the Committee on Medical Economics.

2. The hospitals of the community have co-operated in plans to eliminate all corporate practice of medicine and to establish the principle that the practice of medicine is the function of the medical profession while the hospitals furnish certain facil-

ities for such practice. This principle has been accepted by community and university hospitals alike.

3. The practice of medicine in and through government agencies has been thoroughly surveyed and efforts are constantly being made to confine such practice within legitimate and necessary limits.

4. The entire problem of workmen's compensation practice has been thoroughly investigated and many abuses and unethical practices have been eliminated.

5. Contract practice has been concretely defined and brought under the control of a new standing committee of the Medical Society of the District of Columbia known as the Compensation, Contract and Industrial Medicine Committee.

6. Thorough and constant cooperation with the Public Health Department and the Board of Public Welfare has been maintained to the great benefit of preventive medicine and the control of infectious disease.

7. The Medical Economic Security Administration of the District of Columbia has been established and is in successful operation. This coordinating agency represents and acts officially for (a) the Government of the District of Columbia through the Permit Office of the Board of Public Welfare; (b) the public clinics maintained by the Health Department; (c) the Council of Social Agencies; (d) the Community Chest; (e) all of the community hospitals, including their outpatient departments; (f) the Medical Society of the District of Columbia, the Medico-chirurgical Society of Washington (colored), the District of Columbia Dental Society, and the Robert T. Freeman Dental Society (colored).

In a single building are housed the four instrumentalities of the administration by which applicants for medical and dental care are sorted, classified, and appropriate assistance provided. They are:

First—The Central Admitting Bureau for Hospitals, accepted by all local agencies for the care of the sick as the sole channel through which their clientele may come. Through it the indigent sick problem is being brought under control and by it there has been created a general feeling of confidence that medical charities are being wisely used and abuses eliminated.

Second—The Permit Bureau of the Board of Public Welfare, through which the completely indigent are appropriately placed in state maintained institutions—the economic status of the applicants having already been determined by the Central Admitting Bureau.

Third—The Community Chest, as represented by the Central Admitting Bureau, itself an agency of the Chest, by which the semi-indigent are hospitalized by subsidies from the Chest to supplement the patients' own resources.

Fourth—The Medical-Dental Service Bureau, a non-profit, non-interest-charging finance corporation, owned, controlled and supported by the medical and dental professions, to provide a means for post-payment on the budgeting plan for the emergency medical, dental and hospital needs of people requiring such assistance. This Bureau is financed by voluntary deductions from the minimal fees paid through it to the physicians, dentists and hospitals serving the patrons of it.

8. A group hospitalization plan, which is a civic enterprise on a non-profit basis, and which eliminates every form of medical service and confines itself to hospitalization, has concluded its first full year of operation. Its success is assured.

Through the above plans and their natural developments which are now under way, the medical and dental professions of Washington are confident that many of the most difficult economic and so-



cial problems of medical care will be solved. In all of these enterprises the medical and dental professions retain a controlling representation.

During the time of development of these constructive plans there has been constant apprehension that the widespread propaganda for health insurance would result in passage of laws either in the National Congress or in State Legislatures which would set up state-controlled systems of medical practice.

The Medical Society of the District of Columbia is now convinced that the time has arrived for nation-wide, concerted action under the direction of organized medicine to combat the adoption of health insurance schemes and to inspire and encourage the medical profession to take charge of medical service in every community throughout the United States. This Society recognizes that the economic problems which have given rise to health insurance propaganda must be met adequately by and within the medical profession if this end is to be attained.

The Society, therefore, requests that every State Medical Society in the United States join with it in a militant and intensive campaign to inform all county and other medical organizations and the individual members of such organizations of the evils of health insurance so that they will be impelled to oppose its adoption in every legislative body throughout the Nation.

The Society especially requests the Board of Trustees of the American Medical Association to make available its great resources in actively opposing the adoption of health insurance plans in any part of the United States. It recognizes the value of the great amount of factual data which has been accumulated and made available to the profession through the Bureau of Medical Eco-

nomics but it believes that the time has now arrived for active opposition and an intensive campaign to inform and arouse the medical profession to the dangers to the profession and the public from the adoption of health insurance laws. It conceives that this can be accomplished through a corps of speakers made available by the American Medical Association to state medical societies, through radio broadcasts and by newspaper and magazine articles to combat the constant stream of articles favoring health insurance.

In addition, and in particular, it is our belief that the American Medical Association can most effectively oppose the propaganda for state administered health schemes by proposing something better, and can be of great assistance to the general profession by giving publicity to the beneficent effects of various plans now being carried out by constituent medical societies in many localities. The public should be informed that medical progress is farther advanced in the United States than anywhere else in the world, and that plans are in operation now under direction of the medical profession itself for the explicit purpose of making the fruits of this progress available to our people of every economic class. The American Medical Association should so recognize and publicize these efforts of its constituent bodies that the American people may be brought back to the habit of looking with confidence to the medical profession for the supply of all the health needs of the populace. Further, the American Medical Association, which claims to speak for the whole profession and which is widely recognized by the press and the people as so speaking, should so recognize these social experiments of its constituents that they may be identified by the public as a general movement of the whole profession aimed at the solution of a na-

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tional need rather than at merely local difficulties. The powers and resources of the Association should also be made available to the constituent societies that the movement may be stimulated and guided into a concerted effort of such proportions and extent that it obtrudes itself upon the national consciousness as the answer of the medical profession to the propaganda for health insurance.

**The people should know that health insurance is directed at only a small part of the total problem and that its evils quite offset its advantages even in that small field. They should know that the American Medical Association has already tackled the job for the people in a better way, and will carry it through if given time, confidence and support.**

This Society conceives that only the American Medical Association working through state and county societies, and at their request, can accomplish the objects sought, which are so essential to the continuation of medical progress and the welfare of the public.

The Medical Society of the District of Columbia directs this plea for militant action to its sister societies throughout the Nation and to the American Medical Association of which it is a component part, in the confidence that prompt and concerted action can stem the tide of propaganda for health insurance, and that it is only through the active participation of the American Medical Association that our efforts can be made timely and effective.

If the above considerations seem valid and compelling to the Councils of State Societies it is respectfully recommended that action be taken early this fall, before the state legislatures are in session, to arouse every county medical society to the necessity for concerted action during this entire winter, and that each state request the active assistance of the American Medical Association.

## PUBLIC HEALTH NOTES

J. ROSSLYN EARP, DR. P. H.

Director New Mexico State Bureau of  
Public Health

### Convention

These notes are written in Milwaukee at the 64th annual meeting of the American Public Health Association. Crowded sessions give all the appearance of a record attendance. There is enough of disagreement to make the sessions interesting. As a science public health is still in a stage of rapid development. New vaccines are under discussion. Against poliomyelitis the vaccines of both Kolmer and Brodie have been used in recent months. Critics of these vaccines were Drs. Thomas M. Rivers, of the Rockefeller Institute, and James P. Leake, of the U. S. Public Health Service. Kolmer's vaccine is a live attenuated virus. It has been given to some 12,000 persons of whom eight have developed poliomyelitis. Dr. Kolmer is satisfied that they developed the disease because they received the vaccine too late to prevent it. The critics are not satisfied that the disease may not have been caused by the vaccine. The Brodie vaccine is considered safe but of unproven efficacy. Of the 8,000 who have received this vaccine none has yet developed poliomyelitis. More experience is needed.

Dr. Sauer presents results obtained with pertussis vaccine. He doubts whether it has curative value but believes that in children under three years of age eight c.c. of approved commercial pertussis vaccine, injected sufficiently long before exposure,

will immunize about 90 per cent. Children over three years of age will probably need a total of 10 or more cubic centimeters. His experience is that of 127 vaccinated children known to have been exposed to contagion 10 developed whooping cough.

The section on vital statistics of the Association has determined that birth certificates need bear no record of illegitimacy of birth. Their decision to seek the modification of birth certificates so that this information shall not appear on them was approved by the governing council of the Association. It is probable that by the time babies now being registered have grown to maturity they will have no cause to care whether such information is recorded or no.

Dr. Jean Downes, of the Milbank Memorial Fund, reports on the spread of tuberculosis in a rural community (Cattaraugus County, New York). He finds that for every active case resulting from a familial contact there are two in the community as

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a result of extra-familial contact. Such contact was shown to occur in group relations such as schools, factories and other work centers.

The new president-elect is Dr. Thomas Parran, health officer of New York State, and the convention city for 1936 is New Orleans.

## EL PASO COUNTY MEDICAL SOCIETY

Reported by Dr. L. O. Dutton, Secretary.

Meeting was called to order by Dr. B. F. Stevens at 8:00 P.M. Sept. 23, 1935. The minutes of the previous meeting were read and approved.

Dr. Leslie Smith presented a paper "Premalignant and malignant Lesions of skin treated by endothermic methods." Discussed by Drs. Cathcart, Turner, Laws, Von Briesen, Gallagher and Stevens.

Dr. Von Briesen presented a paper "Preview of Treatment Methods of Carcinoma of the Breast." Discussed by Drs. Miller, Cummins, Waite, Cathcart, Green, Awe, Turner, Gallagher, and closed by Dr. Von Briesen.

Miss Dorris Weaver asked the cooperation of the society to let the public know what is being accomplished by the medical profession for tuberculosis through the medium of articles in the newspapers. She wishes more articles.

A letter from Dr. Holman Taylor was read.

Dr. Charles Hennick described two cases being handled through the Medical and Dental Central Service.

The meeting adjourned at 10:00 P. M.

Meeting was called to order at 8:00 P. M. November 14, 1935, by Dr. B. F. Stevens, at Hotel Dieu Nurses' Home.

The minutes of the previous meeting were read and approved.

Dr. Ralph Homan presented a paper entitled "The Tuberculous Apex and Phrenic Evulsion." Discussed by Drs. Egbert, Long and R. B. Homan.

Dr. W. T. Chapman presented a paper entitled "Causes of Irregular Teeth and Benefits Gained by Treatment." Discussed by Drs. Vandevere, Gwinn, Gorman, Ralph Homan, Robt. Thompson, B. F. Stevens and Rennick.

Dr. Vandevere presented three cases of foreign bodies in air passages, as follows: Chicken bone—adult; bean in right bronchus—child; sewing machine bobbin in esophagus—9-year-old boy. Removals by esophagoscopy.

Dr. R. B. Homan, Jr., presented a case of Tuberculosis, 20 years duration, with abscess of costal cartilage or sternum external to the pleural cavity.

Application of Wilmer Adams to the society approved.

The Woodman Circle Baby Show was announced to the Society.

Mr. Evans from Central Medical and Dental Service gave a report as to what the Bureau has done and made an appeal for more support from the Society.

Dr. Ralph Homan proposed appointment of an advisory committee to the Central Medical and Dental Service. Dr. Paul Gallagher moved to allow the Board of Control to appoint the committee. Motion was made that the President appoint the committee; passed.

Dr. Egbert suggested a list of names. The following members were appointed: J. W. Cahtcart, John Hardy, Stephen Schuster, Paul Gallagher, K. D. Lynch, Willis Waite, T. J. McCamant, James A. Pickett, H. T. Safford, E. B. Rogers, H. H. Varner, and Hugh White.

Meeting adjourned.

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## PROCEEDINGS OF THE NEW MEXICO MEDICAL SOCIETY

**53rd Annual Meeting**  
**Albuquerque, N.M., May 23-25,**  
**1935.**

(Concluded from October issue)

### MALPRACTICE INSURANCE:

Dr. L. B. Cohenour (Albuquerque) stated that a representative of the insurance company which insures the members of the Society against malpractice in the State had recently reported that there were more and more malpractice suits being filed all the time, many of them in Albuquerque, with consequent judgments which had to be paid, and that if some means were not devised to curb the matter, the Company would have to withdraw from the State of New Mexico. It was suggested that a plan such as followed in Colorado be adopted, i.e., that a Medical Defense Committee be appointed, the duty of such committee being that in case of suit being filed or threatened, the facts be ascertained from each side, with an effort to adjust differences if possible, either by squelching the case, compromise, or if Court action be unavoidable, then to ascertain the best means of fighting it. Dr. Cohenour further stated that unless some such action was taken, the insurance company would not continue its program, and if it should withdraw members of the Society would be left entirely without protection, as there is no other company writing malpractice insurance in New Mexico, or at least in Albuquerque.

Motion by Dr. G. T. Colvard (Deming) that a Committee on Medical Defense, composed of three members, be appointed by the President to confer with the representative of the U. S. Fidelity & Guaranty Insurance Company on behalf of the Society, to adjust any difficulties that may arise and treat the whole situation, was seconded by Dr. J. W. Stofer (Gallup) and carried.

The President, Dr. C. W. Gerber, appointed as members of Committee on Medical Defense: Dr. W. R. Lovelace (Albuquerque); Dr. Carl Mulky (Albuquerque); Dr. L. B. Cohenour (Albuquerque). Later this Committee was increased to five members, the two additional members named being Dr. F. F. Doepp (Carlsbad) and Dr. C. H. Gellenthien (Valmora).

### F. E. R. A. AGREEMENT:

Dr. Carl Mulky (Albuquerque) referred to the Committee report and the discussion yesterday in regard to the F.E.R.A. medical relief and stated that it was impossible for the ladies who were present at the meeting yesterday to attend the session today, and he had been requested to introduce a motion to appoint a Committee with whom they might confer and arrange plans later. Motion was read and presented as follows:

That a Committee be appointed to be known as the Medical Relief Committee, to confer with the New Mexico Emergency Relief Administration relative to medical care of indigents in New Mexico; that this Committee be given full power to act for the New Mexico State Medical Society until the next Annual Meeting in revising F.E.R.A. fee schedules or setting up any plan for the administration of medical relief that may seem advisable." Dr. Mulky further stated that this Committee would meet with representatives of the F.E.R.A. and would constitute the Medical Relief Committee, to



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**Superintendent**



administer funds allotted for medical relief under such plans as the Committee devised, and that under the set-up in mind, all medical orders instead of being issued by a case-worker or layman would be issued by a registered nurse, so that every Relief Bureau would employ a registered nurse who would be responsible for issuing such orders.

Dr. C. A. Miller (Las Cruces) stated that he would like to see a new agreement drawn up and that he thought Doctors who are not members of the State Medical Society should be barred from getting relief work. "We have several abortionists and narcotic addicts in our locality who are doing quite a lot of this work," the Doctor stated, "and if only members of the Medical Society could be given these orders, it would help us a great deal."

Dr. G. T. Colvard (Deming) stated that under a recent ruling of the Attorney General there could be no discrimination made as to practitioners, and that while he was in accord with the spirit of the previous remarks, yet there was no authority whereby orders could be confined to members of the Society.

The motion of Dr. Mulky was thereupon seconded by Dr. W. R. Lovelace (Albuquerque), and carried. The President appointed as members of the MEDICAL RELIEF COMMITTEE: Dr. Carl Mulky (Albuquerque); Dr. G. T. Colvard (Deming); Dr. R. L. Bradley (Roswell); Dr. V. E. Berchtold (Santa Fe), and Dr. F. H. Crail (Las Vegas).

No further business arising, the meeting adjourned at 3 p. m.

#### AFTERNOON SESSION, MAY 24, 1935.

The afternoon session was opened with a lecture by Dr. W. P. Holbrook, Tucson, Arizona, on "Present Day Conception of Arthritis."

Dr. R. W. Lamson, Los Angeles, Cal., gave a paper on "Hay Fever."

Dr. Orville H. Brown, Phoenix, Arizona (Fraternal Delegate from that State), lectured on "Allergy Problems."

Papers presented during the day were discussed by Drs. S. L. Haas, San Francisco; L. M. Miles, Albuquerque; C. A. Miller, Las Cruces; V. L. Burton, Albuquerque; R. O. Brown, Santa Fe, and H. H. Latson, Amarillo, Texas.

The Entertainment Committee had arranged a dinner dance for the evening, which was held at the Franciscan Hotel, was well attended and provided pleasing diversion for all.

#### THIRD DAY, MAY 25, 1935

The scientific session opened with a demonstration clinic, conducted by Dr. R. W. Lamson, Los Angeles, Cal., showing types of asthmatic patients. Three cases were exhibited.

Dr. Felix P. Miller, El Paso, Texas, Fraternal Delegate from Texas, presented a paper on "Apical Thoracoplasty in Pulmonary Tuberculosis."

Discussion of Dr. Miller's paper was opened by Dr. L. S. Peters, Albuquerque, participated in by Dr. C. H. Gellenthien, Valmora, and closed by Dr. Miller.

Dr. A. J. Scott, Los Angeles, Cal., read a paper entitled "Acute Contagious Diseases from the Standpoint of the Pediatrician."

The concluding paper on the program was presented by Dr. J. Arnold Barger, Division of Medicine, The Mayo Clinic, Rochester, Minn., entitled "Management of Peritonitis as Based on New Conceptions of its Nature."

### NEWS ITEMS

Dr. G. H. LaBerge, who has been located at Payson, Arizona, for the past two years, has moved to Peoria, Arizona.

Dr. and Mrs. C. R. Swackhamer of Superior, Arizona and their two sons visited the Hawaiian Islands during the summer, returning in time to place their older son Robert in Stanford University where he is taking a course preparatory to the study of medicine.

Dr. Fred C. Jordan of Phoenix, Arizona, member of the Orpheus Club, was elected president of the club for the ensuing year. Dr. Jordan has taken a prominent part in the Orpheus Club since its organization.

Dr. R. J. Stroud of Tempe, Arizona, was elected Vice-president of the Orpheus Club of Phoenix for the ensuing year. He has been active in the club since its inception.

Dr. Nelson D. Brayton of Miami, former District Governor of Lions International, talked before the annual Ladies Meeting of the Miami Lions Club on a subject of interest to the women.

The Medical Auxiliary of the Maricopa County Medical Society has inaugurated Mrs. J. M. Meason, the wife of Dr. Meason of Chandler. She has already started plans for the coming year, and under her guidance the Auxiliary has started its activities.

Dr. Trevor G. Browne of the Phoenix Clinic in Phoenix, president of the Little Theatre, engineered the initial meeting of the year and has plans under way that should develop the Little Theatre a great deal during the year.

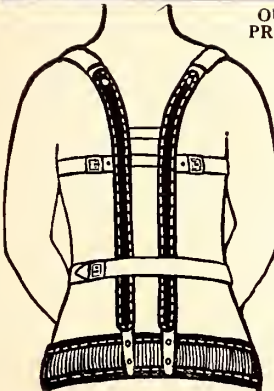
Dr. Clarence Gunter of Globe was a recent Phoenix visitor.

Dr. and Mrs. C. A. Donaldson, former residents

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of Mesa but now of Tucson, spent the summer in Minnesota and recently visited Mesa.

Dr. and Mrs. Carlos Craig are about to occupy their new home in Encanto tract in Phoenix, Arizona.

A Trachoma Institute was held at Fort Apache, Arizona from October 4 to 11, 1935 for all Physicians and Nurses in the U. S. Indian Service doing trachoma work.

The Institute was conducted by Dr. Polk Richards, Medical Director of trachoma activities, for the Indian Service. Dr. Phillips Thygeson, of the department of ophthalmology of the University of Iowa Medical School was guest speaker. He remained during October to do experimental work. Dr. Francis I. Proctor, consulting Ophthalmologist for the Indian Service, was present. Ten special physicians and 16 nurses doing trachoma work attended.

The U. S. Indian Service maintains an all trachoma school of 275 children at Ft. Apache. Trachoma free children go to other schools on the reservation. A small 18-bed hospital is run in connection with the school for acute cases and operative work.

Dr. L. M. Miles was elected President of the Albuquerque Kiwanis Club for the coming year at their regular election last week.

Dr. J. W. Myers is a recent addition to the Veterans Hospital at Albuquerque. His specialty is neuropsychiatry.

Dr. Sophie D. Aberlee, who has been doing research work among the Pueblo Indians and who has recently been appointed general superintendent of the Pueblo Indians, addressed the Bernalillo County Medical Society at its last meeting on "Medical Problems among the Pueblo Indians."

Dr. John E. Bacon of Miami, Arizona, National Committeeman of the Democratic Party, has declined to make the race for re-election. Dr. Bacon recently took a prominent part in the Loyalty Program sponsored by the people of Gila County under the Arizona Loyalty Program.

Dr. Trevor G. Browne of the Phoenix Clinic addressed the Roosevelt Neighborhood Woman's Club on Tuesday, October 24, on the subject of "Child Health."

Dr. E. Payne Palmer of Phoenix proposed to the American College of Surgeons that the college should sponsor First Aid Stations at points where accidents commonly occur.

Dr. and Mrs. T. C. Harper of Globe, Arizona, visited in Phoenix during October.

Dr. C. W. Sult of Phoenix is a proud father of a budding lawyer, Preston F. Sult, who has opened offices in Coolidge, Arizona.

The Phoenix surgeons who attended the meeting of the American College of Surgeons in San Francisco were: Drs. Henry T. Bailey, Thomas W. Woodman, Kim Bannister, E. Payne Palmer, W. O. Sweet, Victor Randolph, A. M. Tuthill, and J. M. Greer.

Dr. J. D. Hamer, President-elect of Arizona State Medical Association, gave the commencement address at the Nurses Commencement Exercises in Globe, Arizona during October.

Dr. Benjamin Herzberg of Phoenix, Arizona is soon to take unto himself a wife, Miss Dorothy Kline of Los Angeles, the daughter of Mrs. Sally Kline, formerly of Omaha, Neb. The picture of Miss Kline as reproduced in the Phoenix paper indicates a very charming young woman.

Dr. John K. Nattinger, son of Mrs. J. B. Ryland of Arcadia is studying in London, England under S. Harold Gillies, celebrated British surgeon. For the past two years he has been in Vienna and Paris.

## WALTER G. HOPE

Once more the messenger of death has invaded our circle and has called from our midst our oldest member in point of continuous membership.

Walter G. Hope was a member of our society for forty-four years. He lived the highest traditions of our profession. He was loved by both his patients and his colleagues in his profession. More than once have I heard him say that aside from his immediate family his professional brethren meant more to him than any others in the world. While on account of failing health he has not been active the past few years, his interest in his associates never flagged; like the Savior of men, "He went about doing good." His life is an inspiration to those of us who are left.

Be it resolved that a copy of these remarks be spread on our minutes, be mailed to his daughters and to Southwestern Medicine, and that an appropriate wreath be placed on his grave.

—Bernalillo County Medical Society.

Dr. Hope died, at the age of 75 years, September 22, in Hollywood, California, where he went in 1929 because of failing health. He graduated from Jefferson Medical College in 1886 and located in Albuquerque in 1891.

The Maricopa County Medical Auxiliary will meet November 4 in the home of Mrs. James I. Moore at the Arizona State Hospital for an evening of entertainment. The Hallowe'en motif and decorations will prevail. The officers of the Auxiliary and the Advisory Board met during the latter part of October with Mrs. James M. Meason of Chandler.

Dr. W. W. Wilkinson is a member of the Board of Directors of the Florence Crittenton home in Phoenix which position he has held for several years.

Dr. Fred W. Parrish of Bowie, Arizona, announces that a new racket is being worked in that locality by three women who claim to be nurses and that they represent the State Health Department, under whose auspices they are selling subscriptions to a weekly pamphlet concerning health for 99 cents. No such women are connected with the State Health Department of Arizona.

Dr. H. B. Lehmberg, a local physician of Casa Grande, Arizona, has been serving as city physician and giving his time to inoculating the pupils of the city schools against the usual diseases for which inoculations are given. He is an ex-officio member of the board of health of the City of Casa Grande.

Mr. Clarence N. Boynton, chemist and bacteriologist of the Pathological Laboratory of Phoenix, was recently honored by being made a Fellow in the American Public Health Association.

Charles N. Ploussard, who has had offices on the sixth floor of the Professional Building, announces his removal to suite 907 and 908 of the same building.

Benson Bloom, M.D., announces the opening of offices in association with W. Paul Holbrook, M.D., in 505-510 Valley National Bank Building, Tucson, Arizona.

Dr. M. I. Leff, of Glendale, Arizona, has been asked by the Globe High School to speak before the general assembly on the situation in the Italo-Ethiopian conflict.

Dr. Walter D. Hunt, a retired physician prominent in Kansas medical circles some years ago, and who has been living in Douglas for the past nine years, died November 1, 1935.



## BOOK REVIEW

**THE AMERICAN ILLUSTRATED MEDICAL DICTIONARY:** A complete Dictionary of the terms used in Medicine, Surgery, Dentistry, Pharmacy, Chemistry, Nursing, Veterinary Science, Biology, Medical Biography, etc.; By W. A. NEWMAN DORLAND, A.M., M.D., F.A.C.S., Lieut.-Colonel, M.R.C., U. S. Army; Member of the Committee on Nomenclature and Classification of Diseases of the American Medical Association. With the Collaboration of E. C. L. MILLER, M.D., Medical College of Virginia; Seventeenth Edition, Revised and Enlarged; Octavo of 1573 pages with 945 illustrations, including 283 portraits; Philadelphia and London; W. B. Saunders Company; 1935; Flexible and Stiff Binding. Plain \$7.00 net; Thumb Index \$7.50 net.

Although this popular dictionary has 1573 pages it is under two inches in thickness. Every page has been gone over, a large number—several thousand—new terms have been added and the entire volume has been edited by the staff of the American Medical Association. It would seem that every effort has been exerted to insure accuracy. The price of \$7.00, or \$7.50 for the thumb index, is certainly as low as could be expected.

**A TEXTBOOK OF BIOCHEMISTRY:** Edited by Benjamin Harrow, Ph.D., Associate Professor of Chemistry, The City College, College of the City of New York and Carl P. Sherwin, M.D., Sc.D., Dr. P. H., LL.D., Member of the Staff of St. Vincent's Hospital and French Hospital, New York City; 797 pages with 52 illustrations; Philadelphia and London; W. B. Saunders Company; 1935; cloth, \$6.00 net.

This text book on biochemistry is unusual in that each chapter is prepared by a different author, so that it represents not simply the ideas of a single teacher, but a compilation of the living organism in thirty chapters. The preliminary chapters on the living cell and the fundamental food materials are

very complete, occupying over 250 pages. These are followed by chapters on the various phases of metabolism. Of particular interest to the reviewer were the chapters on mineral metabolism, biochemistry of bone and the function of water in the organism. Ordinarily a compilation of this sort would lack consecutiveness,—a desirable quality in a text; this factor has been preserved by the careful editing, so that in passing from one chapter to another the reader is not aware of any confusion through changes in style or thought. It is a book which every physician desiring to keep abreast of the times should have available.

W. W. W.

**NEW AND UNOFFICIAL REMEDIES, 1935.** Containing Descriptions of the Articles Which Stand Accepted by the Council on Pharmacy and Chemistry of the American Medical Association on January 1, 1935. Cloth. Price, \$1.50. Pp. 510. Chicago: American Medical Association, 1935.

The splendid work of the Council on Pharmacy and Chemistry is too well known for their New and Nonofficial Remedies to need any special review. Among the new preparations accepted this past year are carbarsone, hippuran and diodrast (urographic contrast media for intravenous use), carotene, dilaudid, neo-synephrin hydrochloride and diothane (local anesthetic).

Several preparations previously accepted have been dropped, for example bacilli acidophilus preparations and certain antiseptics.

There are 510 pages including an index. In addition there is Bibliographical index to proprietary articles and unofficial articles not included in N. N. R. of 61 pages.

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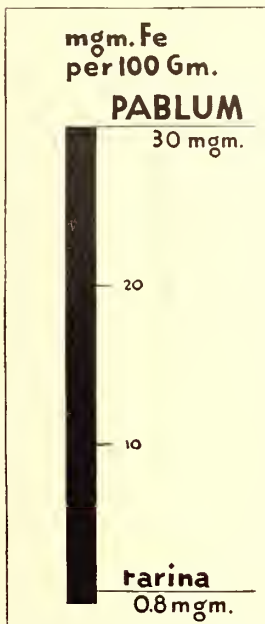
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(REGISTERED U. S. PATENT OFFICE)

VOL. XIX

DECEMBER, 1935

No. 12

OFFICIAL ORGAN  
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ARIZONA STATE MEDICAL ASSOCIATION  
EL PASO COUNTY (TEXAS) MEDICAL SOCIETY  
THE MEDICAL AND SURGICAL ASSOCIATION  
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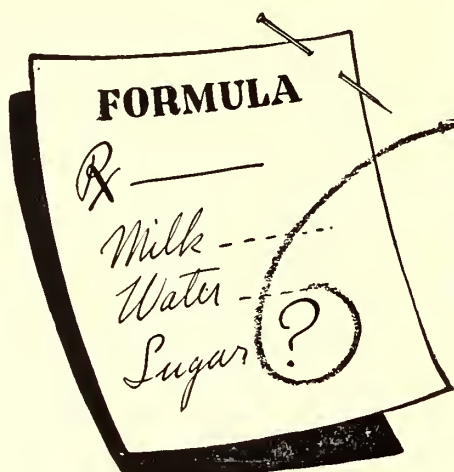
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(1) 1934, Ind. Eng. Chem., 26, 758  
(2) 1932, Ind. Eng. Chem., 24, 650

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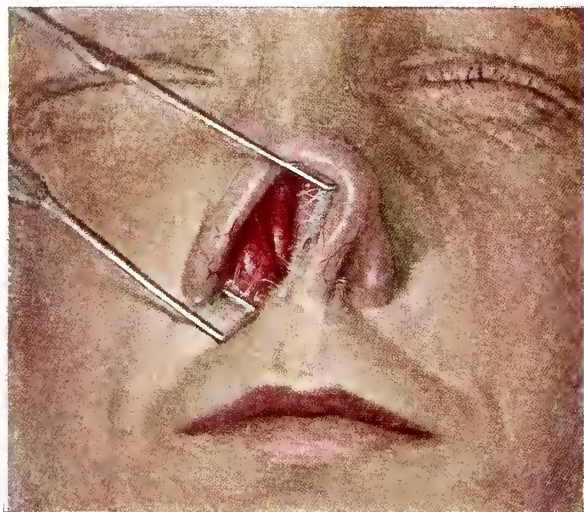


Figure 1—Time, 2:15 p. m. Before treatment.

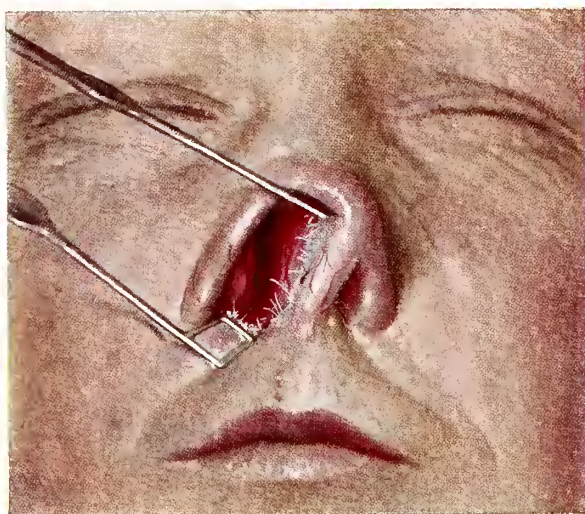


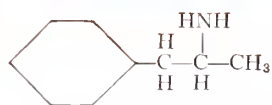
Figure 2—Time, 2:22 p. m. After using Benzedrine Inhaler.

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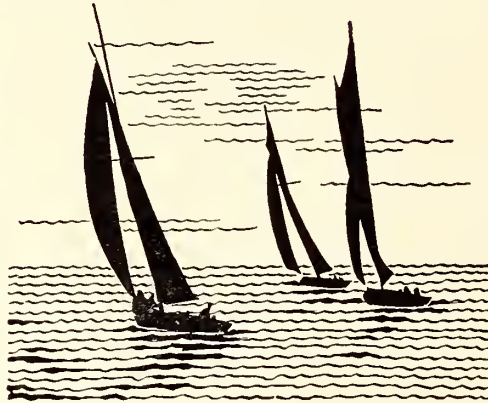
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VOL. XIX.

DECEMBER, 1935

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ANNUAL SUBSCRIPTION \$2

SINGLE COPIES 25 CENTS

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"Acceptance for mailing at special rate of postage provided for in section 1103, Act of October 3, 1917, authorized March 1, 1921."

## THE ENDOCRINES IN GYNECOLOGY

H. H. LATSON, M. D.  
Amarillo, Texas

(Read before the Fifty-third Annual Session of the New Mexico Medical Society, at Albuquerque, May 23 to 25, 1935.)

This paper is to present in simple language the latest facts concerning the relation of the anterior pituitary body to ovarian functions, and to deduct from this information methods of treatment based thereon. In my experience, though occasional disappointment has been experienced, the methods of treatment are productive of worthwhile results.

Physicians have long realized that in order to interpret the cause of many gynecological disturbances it has been necessary to look beyond the pelvis. Research within the last few years has further justified the worthiness of this line of thought. I refer to the relation of the anterior lobe of the pituitary body to sex development and function.

In order to clarify my discussion of the subject, I wish to call attention to a few anatomical and physiological points concerning the pituitary body and ovaries.

The pituitary body is a small ellipsoid organ located in the sella tursica, at the base of the brain. It consists of two principal lobes, the anterior and the posterior, with a thin epithelial structure intervening, known as the pars intermedia. In order to comprehend the physiology of the pituitary body it is necessary to study each lobe as a separate and distinct organ.

Only the anterior lobe will be considered here. This lobe is an epithelial structure embryologically derived from tissue in common with the pharynx.

Two types of epithelial cells in the anterior

lobe are of interest: The eosinophilic or growth cells, and the basophilic or sex cells. The cells which elaborate the growth hormone are capable of playing peculiar pranks on the development of human beings. The human curiosities of the circus, such as the giant, the midget, and the lion-jawed man, are the results of over or under secretion of the growth hormone.

The basophilic or sex cells produce a hormone in the female, known as prolan. This hormone has a powerful influence over the development and function of the ovary. If the anterior lobe of the pituitary body is destroyed, ovarian function ceases. As the growth hormone causes a wide variation in the stature of man, so does the sex hormone cause a wide variation in sex development and function.

Let us now consider the ovary. It has been variously estimated that the human ovary at birth contains from 30,000 to 160,000 unripe graffian follicles with contained unripe ova. As puberty is approached, one by one, and in succession these follicles, with contained ova, ripen and approach the periphery of the ovary.

The liquid in this cyst like graffian follicle known as follicular liquid, is rich in the hormone, estrin. Estrin causes endometrial hyperplasia and uterine bleeding—menstruation. After the rupture of the graffian follicle estimated to occur 12 to 16 days before menstruation, a clot quickly organizes and forms a yellow body known as the corpus luteum. Corpora lutea contain estrin but secrete a more powerful hormone known as progesterin. Progesterin is both antagonistic and synergetic to estrin. This hormone stimulates the nidatory changes in the endometrium and at the same time defers menstruation until the endometrium is properly prepared for the implantation of the placenta.

Let us consider again prolan, the female anterior pituitary sex hormone. As sunlight stimulates the budding and flowering of plants, so does prolan stimulate follicular ripening and

rupture, and later menstruation. The process continues with the formation of a corpus luteum and cessation of menstruation. Prolan is thought by many to contain two hormones, prolan A and prolan B. Prolan A, according to this theory, is the follicular-stimulating hormone; whereas prolan B is the leutinizing hormone. These two, however, have never been isolated one from the other, except experimentally.

The urine of pregnancy contains a rich supply of a hormone very similar in many respects to prolan. Investigators differ in their opinion as to the source of this hormone. One school of thought claims that it is furnished by the anterior lobe of the pituitary body. The other considers that it is not from that source, but analagous in its biological effect on the sex apparatus to that of an extract from the anterior pituitary lobe. It has been shown, however, that pregnancy urine extract does not contain the growth hormone. The Aschheim-Zondek test for pregnancy is based on the presence of this hormone in the urine. Though prolan A and B have never been separated for therapeutic purposes, it has been found that small doses of the extract obtained from the urine of pregnancy, given intramuscularly, act on the ovary as the follicular stimulator, whereas large doses cause rapid leutinization.

Based on the theories mentioned here, methods of treating various conditions from the endocrine standpoint are suggested.

**Amenorrhea:** In treating amenorrhea it is first necessary to consider whether the ovary should be stimulated to form its own estrin or whether estrin should be supplied as in replacement therapy. In young patients it is probable that the best results will be obtained by using small doses of water-soluble extracts obtained from the urine of pregnancy, as an ovarian stimulant. In older patients, or in patients who have been treated with x-rays or radium, the ovary may not possess enough vitality to respond to stimulation from prolan. In the latter cases an estrin-containing extract should be used as replacement therapy.

**Menorrhagia:** In cases of excessive or prolonged menstruation of young subjects, good results may often be obtained by using larger doses of the extract from pregnancy urine. This hastens the formation of corpora lutea which contain, as has been stated, progesterin. Corpus

luteum extract may also be given in conjunction, in order to hasten the effect in cases in which menstruation occurs too often as, for instance, at 21 day intervals. The interval may be extended to its normal time by giving adequate doses of corpus luteum extract hypodermically, beginning about 10 days before the expected time of menstruation. I give two ampuls of a standard product on alternate days, and continue until menstruation is established on a normal basis.

**Hot Flashes:** It has been my observation that the hot and cold flashes of women with associated nervousness, are usually due to a waning in the production of corpora lutea. My experience in this respect, however, does not coincide with many other clinicians who claim equally satisfactory results with estrin bearing preparations such as theelin. It has been observed that in menopause cases where estrin is not demonstrable in the urine that estrin is probably the best preparation to use in these cases. My observation, however, has been that corpus luteum has a soothing effect to the nervous system and it is my practice where estrin does not give relief to resort to extract of corpus luteum.

**Dysmenorrhea:** In purely functional types of dysmenorrhea, some estrin-containing preparation given hypodermically, and in some instances by mouth, beginning well in advance of the time of menstruation, has given the best results. One theory of this method of procedure is that estrin improves the uterine blood supply.

**Sterility:** It has been shown that ovulation does not occur in many sterile women who menstruate regularly. In this instance anterior pituitary extract, pregnancy urine extract, and corpus luteum extract are indicated.

It will be recalled that the progesterin content of corpus luteum is necessary to bring about the so-called nidatory change in the endometrium, preparatory to implantation of the placenta.

**Abortions:** Habitual abortions not due to organic diseases may sometimes be prevented by the liberal hypodermic use of corpus luteum extract.

It will be seen that of the preparations recommended in the above functional menstrual disturbances listed, only three hormones are recognized as of therapeutic value, in the last



analysis. These are prolan, estrin, and progestin. I have attempted to classify the various endocrine products, all of which may be grouped under the three hormones as follows:

Prolan—extract anterior lobe of pituitary body, antuitrin S, follutein, and antophysin; setrin—ovarian residue, whole ovary, agomen-sin, sistomensin+progestin, theelol, theelin, progynon, amniotin, menformon and estrogen, etc.; and progestin—corpus luteum, lutein, sistomensin+estrin, luteo-hormon and proluton-B.

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## FUNDAMENTAL PRINCIPLES IN THE GRADING OF MAL- IGNANCY OF TUMORS

---

LUDWIG LINDBERG, M.D.,  
Los Angeles

(From the clinic of Doctors Soiland, Costolow  
and Meland)

(Read before the Pathology Section of the California Medical Association at the sixty-fourth annual session, Yosemite National Park, May 13-16, 1935.)

In discussing the changing concepts of malignancy and in demonstrating the grading of malignancy of tumors, I will review the work of others and later publish a further<sup>21</sup> statistical report of our own cases. The knowledge of tumors has accumulated over many years and is constantly being modified; contributions of many pathologists have lead to adequate diagnosis of tumors.

Generations ago the clinicians knew of the variations in the malignancy of tumors, but malignancy was entirely a clinical concept and crudely defined; any tumor that endangered life or caused death was considered malignant. Malignancy was dependent chiefly on the size and the location of the tumor. Such clinical usage of the term "malignancy" leads to difficulties and errors. Tumors are benign or malignant regardless of the nature of their cell elements; all tumors at an early stage are benign; a tumor is more malignant in the advanced stages than in the early. Even today, the classification and treatment of cancer without regard to histo-pathology are misleading and regretfully unsatisfactory.

By the aid of microscopic studies, the path-

ologic anatomists classified tumors as benign and malignant, basing their classification on clinical, anatomical, and histological data. To them malignancy of tumors was dependent upon rapid growth, infiltration, and metastases. These principles are well known and generally accepted but do not go far enough. However, tumors were sometimes diagnosed pathologically as benign until they had produced metastases or death of the patient. A glandular tumor was an adenoma until its cells had broken the so-called basement membrane or formed metastases; then it was called a "malignant adenoma." Now we know that the cells are malignant before they break through the basement membrane and we make a diagnosis of adenocarcinoma before infiltration occurs. There is no such thing as "benign metastasizing adenoma."

Pathologists have long realized that the difference in the malignancy of tumors is, to some extent, reflected in the histological picture. High and low malignancy were sometimes recognized pathologically but not with regularity and too frequently not until the end stages of the disease—too late to be of value to the patient.

The clinical and anatomical concepts of malignancy are modified, and frequently nullified, by the histologic criteria. Virchow recognized the cell as the histologic unit in the study of disease, and emphasized cellular pathology which is of greatest significance in neoplasia. It was recently reiterated that the cancer cell itself has been too little studied<sup>26</sup>. The determination of malignancy, degree of malignancy, and, in fact, the actual diagnosis of tumors must be based on the morphologic characteristics of the tumor cells. In a sense, the malignancy of cells corresponds to the virulence of bacteria, but with the advantage that it can be estimated by microscopical examination. Malignancy is a property or quality of neoplastic cells and is manifested by certain abnormalities in the structure of the cells and their nuc'ei; it is usually, if not always, synonymous with anaplasia.

Hansemann introduced "anaplasia" not with the idea that all factors producing anaplasia were understood, but as a starting point in the histopathological study of tumors. Anaplasia is a histogenetic theory and does not concern etiology (12).

It has long been stoutly maintained that, morphologically, there is no such thing as a malignant or cancer cell but merely a change in the physiologic activity of the cell. Hansemann<sup>10</sup> searched for a histologic specificum for cancer, observed the lack or loss of differentiation in the malignant cells, and regarded the cancerous process as a second form of metaplasia which he called "anaplasia." Differentiation refers to the series of structural changes which occur in a cell from its earliest stages to maturity.

With the loss of differentiation and specialization of the cell, the function is decreased and the reproductive and proliferative activity is increased<sup>8</sup>. Undifferentiated and partially differentiated cells are always present in malignant tumors. Cancer cells with little differentiation show much anaplasia and those with much differentiation little anaplasia; in other words, differentiation of the cells and anaplasia are inversely proportional. Hansemann<sup>10 11</sup> recognized degrees and grades of anaplasia, and stated that the grade of anaplasia in the tumor and in the metastases does not change except in rare cases.

Hansemann showed that through a process of dedifferentiation, or what he termed "anaplasia (backward formation, epithelial cells could undergo malignant transformation)". Questions are raised whether the cells which may become differentiated or anaplastic are physiologically and morphologically normal cells (mature or immature), or are already abnormal cells. Cells of benign tumors are usually considered fully differentiated but are neoplastic cells and not normal tissue cells. It is well established that carcinoma may arise in an adenoma of long standing. On the basis of dedifferentiation Broders<sup>9</sup> explains the adenocarcinoma originating in an adenoma.

Whether or not mature normal cells may revert to the immature stages or become dedifferentiated is still an open question<sup>28</sup>. Ewing<sup>7</sup> believed this idea of dedifferentiation to be an unwarranted assumption contrary to sound biological principles, and that anaplasia is a term more applicable to the physiological state and the histological appearance of malignant cells.

If normal cells merely lost their differentiation in an orderly backward formation, in the exact reverse order in which differentiation

was acquired, it is conceivable that they would be immature normal cells and not anaplastic or malignant cells. It appears biologically sound to conclude that mature normal cells do not revert to the normal immature stages except by the normal processes of cell division, usually by mitosis; but the possibility still remains that normal cells may become dedifferentiated into abnormal immature stages, resulting in the anaplasia of malignant cells.

Hansemann's anaplasia characterizes the appearance of malignant cells and implies more than a loss of normal differentiation; there is also included a dysplasia in the intracellular structures which exhibits itself by the profound disturbances in the chromatin and the irregular and disorderly growth of the cells. This phase of anaplasia is the basis of the distinction between malignant and normal cells whether of the embryonic or the adult tissue type.

MacCarty<sup>15 16 17 18 19 20</sup> has frequently illustrated the structural differences between the malignant cell and the reparative regeneration cell. He believed that the malignant cell is evolved from a reserve cell although it may be derived directly from a cell which is normally regenerated<sup>18</sup>.

Anaplasia is not a reversion to the primitive or embryonic cell type. The indiscriminate use of the term "embryonic" for any and all young, immature, or undifferentiated cells has caused much confusion in oncology. Embryonic cells, like adult cell types, may be normal or neoplastic. Embryonic cells occur normally in the embryo; they may lack differentiation and be neither neoplastic nor malignant; the cells exhibit no anaplasia—no dysplasia. Neoplasms definitely of the embryonic cell type constitute a comparatively small group. Wilm's tumor (adenomyosarcoma) of the kidney is an outstanding example of the embryonal tumors. Although there are true neoplasms of the embryonic cell type, the importance of embryology in neoplastic diseases has been over-emphasized<sup>6</sup>.

The significance of asymmetrical mitosis is still undetermined. Asymmetrical mitosis refers to atypical, irregular, and multipolar mitosis in a cell having a single nucleus and is different from multiple mitosis which is synchronous mitosis in a multinucleated cell. Ir-



regular and multipolar mitosis has been reported as an artefact, as a rare incidental finding in inflammation and repair, and as an indication of a pathologic process. In the evolution of the concept of anaplasia, dedifferentiation, Hanseemann<sup>11 12</sup> believed that each asymmetrical division of a cell is a change in its differentiation and is accompanied by a change in growth-energy and growth-direction, and that asymmetrical mitosis is a characteristic of cancer. "The more the mitoses of the cancer differ from those of the mother-tissue, the greater is the anaplasia of the tumor"<sup>11</sup>. Broders<sup>6</sup> finds that atypical, irregular, and multipolar mitoses are usually associated with carcinoma and other neoplasms of high degree of malignancy, and believes that it is safe to infer that these forms represent a state of extreme undifferentiation.

Mallory's<sup>20</sup> emphasis on cytology may be briefly summarized as follows: To understand tumor cells, it is necessary to know as much as possible of the development and differentiation of normal cells. The gradation from normal cells to tumor cells should be based on cell differentiation. The true tumor cells tend to differentiate in exactly the same way as do the normal cells to which they correspond. In slowly-growing tumors the differentiation may be perfect. In general, the more the cells differ from the normal in structure and arrangement, the more likely is the tumor composed of them to be malignant. In rapidly-growing tumors the differentiation of the cells is less marked; the cells may depart so widely from the model that it cannot be recognized. Nuclei often show much variation in size; tumor cells frequently exhibit marked differences both in size and in shape. The study and recognition of the differentiation of tumor cells are exceedingly important, for on the differentiation depends the exact diagnosis of the various kinds of tumors.

Although Virchow spoke of the degrees of malignancy and Hanseemann mentioned even the "grades of anaplasia," the actual histological grading of the malignancy of tumors was introduced by Broders<sup>1</sup> in 1920. In his classical studies of tumors, Broders<sup>1 2 3 4</sup> amplified and applied Hanseemann's theory of anaplasia and incorporated the grade of malignancy directly into the pathological diagnosis.

In 1915, Broders began the grading of mal-

ignant tumors and by 1925 had reported the grade and the clinical result of about 2,000 epitheliomas from various parts of the body. His method of grading is based on the degree of differentiation, on the number of undifferentiated and differentiated cells composing the tumor. Tumors are graded on a basis of I to IV, grade IV being the most malignant. Grade I has from one to 25 per cent, II from 25 to 50, III 50 to 75 and IV has 75 to 100 per cent of undifferentiated cells.

The diagnosis and grading of the tumor are made independently of the patient's history and clinical record. The exact source of the tissue should be known. The cell type of the tumor is determined before grading the malignancy. Actual counts of the number of undifferentiated and differentiated cells are rarely made in practice, but it is necessary to study various fields in the slides with both low and high power lenses.

For example, in 537 epitheliomas of the lip, the total good results of surgical treatment checked up eight years after the operations were as follows<sup>1</sup>: 95 per cent in I, 62 in II, 21 in III and none in IV. Thus it has been established that the degree of malignancy of a tumor is inversely proportional to the degree of differentiation of its cells—i.e., directly proportional to the degree of anaplasia. The literature now contains many reports of large series of cancers which have been graded histologically and checked with the clinical results, abundantly confirming Broders' work.

Anaplastic or undifferentiated cells are characterized by irregular and multipolar mitosis, and hyperchromatism and variations in the size and the shape of the cells and their nuclei. "Cells in mitosis and those with single, large deeply-staining nucleoli ("one-eyed cells") are undifferentiated; their number play an important part in the grading."<sup>1</sup>

Normal differentiation of stratified squamous epithelium of the skin is from cuboidal basal cells, through polyhedral prickle cells, and squamous cells, to keratinized cells (Hanseemann, 1893). A completely differentiated cell of a squamous cell epithelioma is one in which the entire cytoplasm is keratinohyalinized, or keratinized, and the nucleoplasm has become eccentric and degenerated. A partially differentiated cell is one in which the cytoplasm is not completely keratinized but is



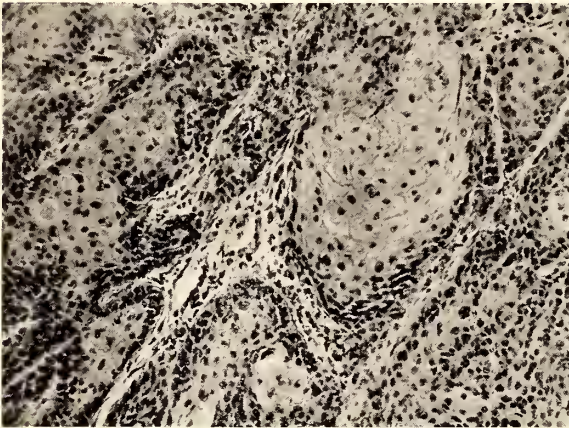
usually disproportionately large in volume in comparison with the nucleoplasm, which often appears decreased, is small, spheroidal or oval, in center of the cytoplasm, and shows no evidence of degeneration<sup>5</sup>.

Malignant cells are usually larger than normal. The nucleus is large absolutely and in proportion to the amount of cytoplasm. The chromatin in the nucleus tends to be coarse, irregular, and granular. Nucleoli, when present, are larger than normal and often multi-

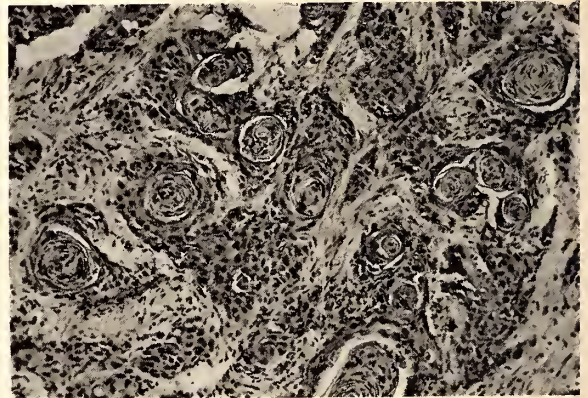
or pleo-morphism. The polarity, the orderly normal arrangement, of the cells is nearly or entirely lost in the highly malignant tumors and much less disturbed in those of low malignancy.

The criteria for grading of malignancy necessarily vary somewhat with the character of the normal cells from which the tumor is derived. "In grading of epitheliomas one must always take into consideration the normal epithelium of the organ from which the epitheli-

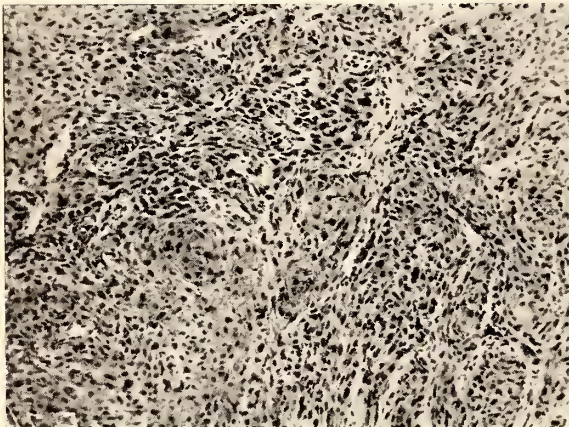
### SQUAMOUS CELL EPITHELIOMA



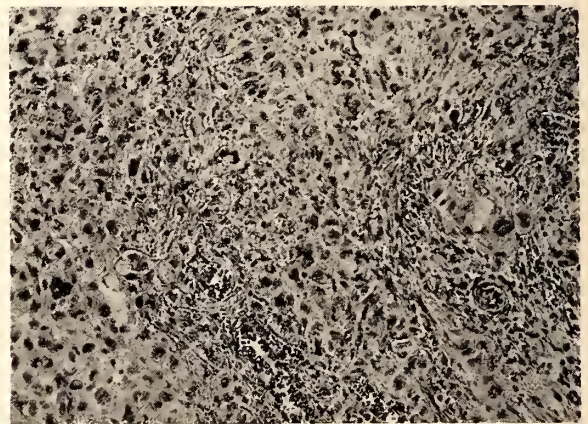
GRADE I



GRADE II



GRADE III



GRADE IV

ple; they are particularly well demonstrated in fresh tissue sections stained with polychrome methylene blue.

Irregular and multipolar mitoses may be found; they may be X- or Y-shaped; pyknosis and karyorrhexis due to degeneration should not be mistaken for irregular mitoses. Sections of highly malignant tumors may show great variations in the size and shape of the cells and their nuclei, a condition now known as poly-

oma has arisen. The epithelium of the bladder, for instance, lacks a well-defined keratinized or horny layer"<sup>3</sup>. The basis for grading of malignancy tends to become clearer with the studies of normal and pathologic cells. The difficulties sometimes encountered in applying any system of grading is partly due to our incomplete knowledge of the varied morphologic characteristics which cells may possess in passing through the various phases of normal

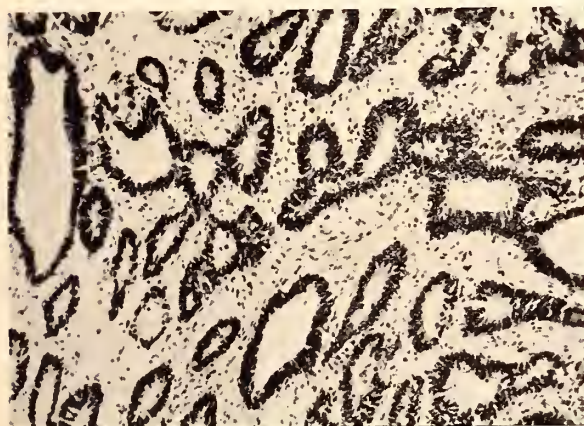


or abnormal development. Cellular pathology has advanced sufficiently to warrant, at least, the grading of the malignancy of the common epithelial tumors.

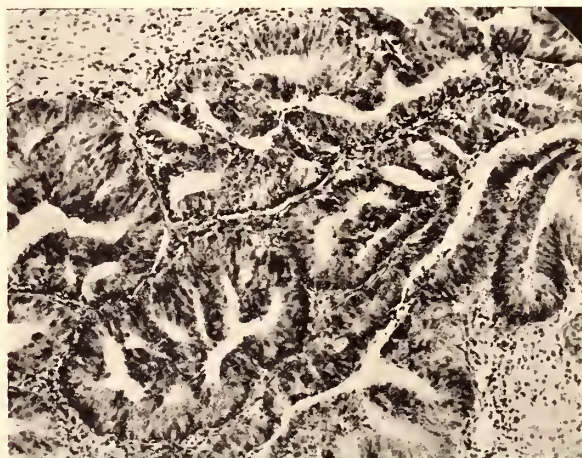
It is generally known that papillary, polypoid, or elevated cancers are less malignant than the flat, infiltrating, cauliflower or fungoid type of growth. This is a good general rule but is not to be absolutely trusted. "A neoplasm may be papillary and of low grade of

uberant type of tumor masses above the surface, but may be of high malignancy, infiltrate, and metastasize. In adenocarcinoma the formation of acini is a sign of differentiation of the tumor cells and an approach towards the normal histology. Intra-acinar papillary formations are most frequently seen in the low grade adenocarcinoma. Papillary formations in squamous cell epithelioma do not appear to have the same significance; papillary formations

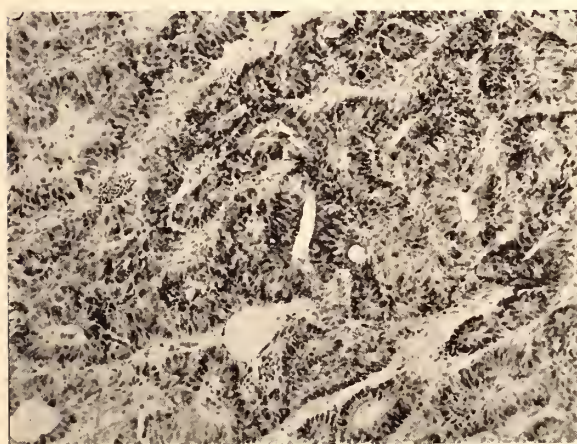
#### ADENOCARCINOMA-RECTUM



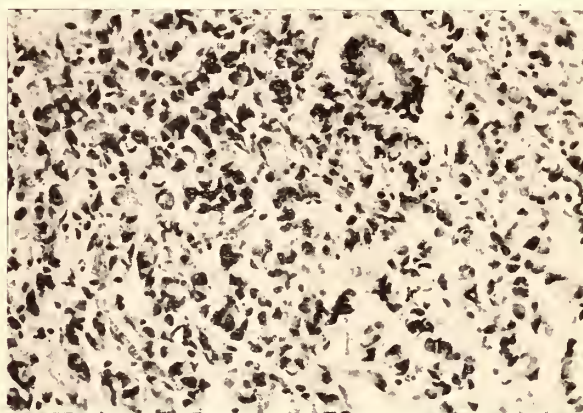
GRADE I



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GRADE III



GRADE IV

malignancy, or papillary and of high grade; it may be flat or ulcerated and of low grade, or flat and ulcerated and of high grade". Some of the flat ulcerating epitheliomas of the lower lip are of low malignancy. Some of the cauliflower growth on the cervix are epitheliomas of high malignancy.

Furthermore, S. C. epitheliomas that are microscopically of the papillary type do not necessarily give rise to the cauliflower or ex-

are not a prerequisite to function of the protective epithelial cells, but may be a mode of rapid growth. It is evident that in the diagnosis of neoplasms the cytological differentiation is of first importance, and the histological differentiation is secondary.

Most of the principles already given also apply in the grading of adenocarcinoma. The formation of ducts and acini is the rule in grades I and II, is much less marked in grade



III, and is often entirely absent in grade IV. In the higher grades of malignancy the glandular tumor cells frequently occur in solid masses without histological differentiation and accompanying function. As could be expected, the cells in the tumors of low malignancy may perform some of their glandular functions, for example, the secretion of mucus. Many reports on the grading of adenocarcinoma have appeared in the literature<sup>8 9 13 14 22 25 26</sup>.

By the grading of tumors, we now know pathologically that tumors of the same cell type may differ widely in the degree of malignancy in the same and in different locations<sup>1 2 3 4</sup>. A grade I epithelioma rarely metastasizes, and then usually in the very advanced stages only; it runs a course over many years. A grade IV epithelioma practically always metastasizes in the early stages of the disease and tends to run a rapid fatal course. Epitheliomas of the lower malignancy, grade I and II, occur predominantly in the skin, lip, inner cheek, gums, anterior part of tongue, floor and roof of mouth, larynx, penis and labia. Epitheliomas of the higher malignancy, grade III and IV, occur predominantly in the tonsil, base of tongue, naso-pharynx, pharynx, esophagus, cervix uteri, and vagina. The lower malignancies of adenocarcinoma, grade I and II, predominate in the corpus uteri, colon, and rectum; while the higher malignancies, grade III and IV, predominate in the breast, stomach, and testicle. In some organs carcinoma of low and high malignancy occur in approximately equal frequency. Although the majority of the tumors are of the grades of malignancy indicated above, all tumors must be examined and graded microscopically.

It is evident that a pathological diagnosis simply of "carcinoma" is insufficient to indicate the real nature of the disease. The grading of malignant tumors has not appealed so strongly to the pathologic anatomists because death of the patient has already occurred, but in clinical or surgical pathology grading is a necessity. Long elaborate histological descriptions are seldom read by the clinician; they are for the pathologist; they are more appropriate in pathological research and in the body of necropsy reports.

It should be clear that the histological grading of malignancy of tumors by the patholo-

gists is entirely different from the clinical grouping of tumors according to the clinical stages of the advancement of the disease, and is also different from clinical radio-sensitivity which refers to the rapidity of response, primary regression, obtained in the treatment of tumors by x-rays or radium.

The grading of malignancy of tumors is an aid in diagnosis, treatment, and prognosis. The required study of the neoplastic cells facilitates the determination of the cell type, and the distinction between benign neoplasms and tumors of low malignancy. The grading of malignancy of the tumor may decide whether the patient should be treated by irradiation, or by surgery, or by a combination of these two methods and how intensive and extensive the treatment should be. The pathological grading of tumors is an aid to the clinicians who take the trouble to become familiar with it. Many surgeons now do not operate radically for "cure" on tumors of grade IV malignancy.

In the formation of a prognosis one must consider the degree of malignancy, the cell type, the size, duration, and location of the tumor, the extent of the disease, and the general condition of the patient. "In the prognosis of malignant tumors the grade of malignancy is, by far, the most important factor. As a rule, the grades of malignancy of cancer are in direct proportion to their proliferative, infiltrative, metastasizing, and death-dealing capacities"<sup>5</sup>.

Statistics<sup>23</sup> attempting to properly evaluate the therapeutic results are of little significance if the grade of malignancy and the extent of the disease are omitted, because in tumors of low malignancy the number of "cures" and length of palliation are relatively high.

The cytological diagnosis of tumors and the grading of malignancy become more important as we see the patients in the early stages of cancer. Although cancers are often diagnosed clinically, the surgeon and the radiologist realize that the clinical diagnosis of tumors is inadequate and has only presumptive value. The necessity of microscopical examination places the pathologist in the key position in diagnosis of cancer, for it is an accepted principle that treatment depends on the diagnosis. When the full significance of the cellular pathology of



tumors and grading of malignancy are recognized and seriously considered by the surgeons, radiologists, and pathologists who deal largely with neoplastic diseases, then better results may be expected from intelligent efforts.

If you believe with Stewart<sup>27</sup> that "every pathologist dealing with tumors has mentally or by elaborate description divided tumors into various grades of malignancy," there should be little difficulty now in incorporating the grade of malignancy in the diagnosis and in recording it on the pathological report. The simplest method is to name the tumor by its cell type and to indicate the grade of malignancy by numbers, following Broders' system.

#### RESUMÉ

1. With a few exceptions, the grade of malignancy of a cancer is the same throughout the whole tumor, the course of the disease, and the metastases produced.

2. Anaplasia is a histogenetic theory and does not concern etiology. It is applicable to the physiologic state and the histological appearance of malignant cells. Anaplasia implies a loss of normal differentiation and a dysplasia in the intracellular structures.

3. Malignancy is a property or quality of neoplastic cells and is manifested by certain abnormalities in the structure of the cells and their nuclei.

4. The degree of malignancy of tumors is directly proportional to the degree of anaplasia, or dedifferentiation, of the cells.

5. Recognition of the cell type and the degree of malignancy are the most important items in the microscopical diagnosis of tumors.

6. The indiscriminate use of the term "embryonic cells" for any and all young, immature, or undifferentiated cells, normal or neoplastic, benign or malignant, is unwarranted and should be discontinued.

7. The importance of embryology in neoplastic diseases has been greatly over-emphasized.

8. Tumors are not more malignant in the advanced stages than in the early stages of the disease.

9. The recognition of malignancy, and degree of malignancy must be made by microscopical examination and are based on cellular pathology.

10. Clinical diagnosis of tumors is inadequate and has only presumptive value. The

necessity of microscopical examination places the pathologist in the key position in the diagnosis of cancer.

11. Without the pathological diagnosis and the grading of the malignancy of tumors, it is impossible to direct the treatment most intelligently and to evaluate the therapeutic results.

12. The grading of malignancy of tumors is an aid in the diagnosis, treatment, and prognosis of cancer. It is an aid to the clinicians who take the trouble to become familiar with it.

13. "As a rule, the grades of malignancy of cancer are in direct proportion to their proliferative, infiltrative, metastasizing, and death-dealing capacities. In the prognosis the grade of the malignancy is, by far, the most important factor."

14. As Osler said "As our pathology is, so is our medicine."

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## DISCUSSION

DR. SCHUYLER PULFORD, M. D., Sacramento, Cal.: To one who has interested himself in tissue pathology for the past 15 years and who has both hunted ducks and looked down the gun-barrel of the microscope at malignant cells with Dr. Broders, this paper of Dr. Lindberg's rings true.

Although we await with particular interest his Los Angeles group's statistical report of the clinical and pathologic facts on their own cases we should be grateful to the author for first emphasizing certain fundamental principles helpful both to surgeons and cytologic pathologists alike. For instance it is well to emphasize that normal mature, completely differentiated cells do not revert to normal immature cells but that immature, undifferentiated cells rather, as MacCarty has shown come from "reserve cells" lying ready for growth to replace injured or castoff adult cells, resulting in either repair or neoplasia.

The simple unqualified diagnosis of "cancer" or "not cancer" is no longer as Lindberg says the whole story—especially in tumor patients who come early these days—thanks to the wide spread public education on cancer.

How can the surgeon and radiologist be posted and with the patient be benefited by the pathologist's knowledge of tumors, if the pathologist does not incorporate in his report a "degree of response to radiation and malignancy," some discussion as to each particular usual response to radiation, as well as its usual potentiality for metastasis and its death dealing properties. Is not the degree of malignancy the "ace in the hole"—starting point—for such a discussion?

We still see misleading and incongruous reports of statistical clinical results of malignancy treatment when cytological as well as clinical grading of the malignancies into specific groups is not included.

Practically all pathologists think in terms of "degree of malignancy"—why are they reluctant sometimes to apply a number or grade so someone else can benefit by their knowledge?

Such work as Haagenson's on the grading of tumors of the breast emphasizes as has Lindberg, the necessity of visualizing the normal adult completely differentiated functioning cell types and systems of cells in each organ in figuring a grade of malignancy of a tumor in that organ. For example skin cells differentiate towards squamous epithelium and are easy to grade, while breast cells mature to form milk secreting, sweat or sebaceous glands or duct-lining epithelial cells. Breast tumors are harder to grade.

The opponents of "grading" of malignancies, strange to say, often base their arguments on the very principles that enables one to accurately "grade" a tumor. Grading is based on estimating a percentage of cellular differentiation. This degree of differentiation varies in different parts of the same tumor. So how, they ask, can you grade them? Why, it is that very variation and its percentage that gives the "grade," all variations appearing usually in each low power field or at least in three or four fields of the microscope.

As far as I am aware no radiologist has subjected malignant tumors to graded doses of x-ray or radium to measure their response and grade them accordingly. Doctors Soiland and Ullman tell me they give them full dosage or none at all. Tumors respond differently to a maximum dosage so that their response aids in typing the tumors but radiologists will not attempt a "grading of tumors". Until they or some one offers a better method let us grade them cytologically.

We still have such a multiplicity of classifica-

tions and nomenclatures of tumors that they are useful only as a hat rack is, to get something off your head.

A modern tissue pathologist's report should contain something besides a long and to the average doctor meaningless description of a tissue pattern and a stereotype name for a tumor; in the first place because he owes it to the referring doctor to give him some of his knowledge of the tumor presented, and in the second place because the average doctor knows relatively little tumor pathology.

We need a simplified classification of tumors. Simplification of the present descriptive classification by embryologic and cytologic aids fails in many instances for the cell lineage can not be traced in highly malignant tumors.

When both embryology and cytology fail us we may well turn to a classification based upon a factor which seems to go hand in hand with their most striking clinical distinguishing feature; namely, longevity of the tumor host.

We have a practical clinical classification then according to their degree of malignancy measured by longevity. Can we arrive at the same classification by a study of the tumor tissue under the microscope?

Dr. Broder's utilization of the principle of percentage of cellular differentiation in relation to a tumor's "degree of malignancy" coincides fairly accurately with this clinical classification. This is irrespective of the site of origin, embryology if known, or tissue pattern. Clinical experience and increasing numbers of pathologists now urge the grading of tumors into different classes of malignancy.

The age of the patient, duration and size of growth, glandular involvement and tissue reaction and radio-sensitivity are all important factors to be taken into consideration in prognosis and treatment, but the grade of malignancy is most important in a tumor's life history and the host's prognosis. The earlier a tumor is treated, other things being equal, the better the results. Next in importance is, I believe, the degree of malignancy based upon the degree of differentiation of the cells.

I would close not by making a plea for all pathologists to grade tumors but to keep an open mind and careful pathologic notes to correlate with clinical results and make the tumors grade themselves in terms of longevity.

If the tissue picture corresponds quite closely then "grading of tumors" is possible. When Dr. Lindberg reports his clinical results as he has promised to do, I believe that will track closely with the cytologic-histologic picture.

R. A. GLENN, M.D. Merritt Hospital, Oakland: It is with considerable difficulty that one attempts to present a discussion of so comprehensive a paper as that of Dr. Lindberg. Particularly so since the opinions therein expressed are those with which I am in so thorough accord.

The final word as to the histogenesis of cancer must perforce be written on that happy day when we know all the facts about the etiology of this disease. Until then it must remain a matter for academic controversy. Let those whose praiseworthy efforts are devoted to that research ponder the matter. But for those of us whose labors deal with the present day problem of the clinical management of the unfortunate patient suffering from cancer, by far the most important consideration is the acquisition of all the available, dependable, pathological data which, when contributed to the ensemble of the knowledge and skill of all those to whose care the sufferer has been entrusted, spells "Hope" for that sufferer in no uncertain terms.



There is no doubt in our minds that, in a given case of malignancy, the very best treatment the patient will ever receive is, or should be, the first attack; any subsequent efforts to combat the disease are merely gestures to postpone the inevitable. In the concerted first attack on which the life of the patient so abundantly depends, the pathological report, as the essayist points out, is the key position in the diagnosis of cancer. It was with the hope of further enhancing the enlightening value of that report that pathologists in great number, dissatisfied with merely the histological recognition of cancer, have followed the teachings of Broders and attempted to express an opinion, based on standardized methods, of the degree of malignancy present as a further guide in the management of the condition.

No one will claim that histological differentiation is the only factor upon which the degree of malignancy rests. Certainly the location, the duration, the amount of fibrous infiltration, etc., are all worthy of consideration. There is also the uncertain factor of the resistance of the patient himself which introduces an element utterly intangible in this as in all other illnesses to which human flesh is heir. However, we believe that there is fundamental worth in cancer grading based on histological differentiation and that its employment is a material advance in the method of clinical cancer control.

## OVULATION—STERILE AND FERTILE PERIODS

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Denver, Colorado

(Read before the New Mexico Medical Society, at its Fifty-third Annual Session, held at Albuquerque, N. M., May 23-25, 1935.)

The medical profession is slow to accept the new and revolutionary Ogino-Knaus Theory or Law of sterile and fertile periods. The so-called "relative safe period" (first described by Capellman in 1883) hinted at in the older text books and softly mentioned to us at medical school had no scientific foundation. With the accumulated evidence as to the time of ovulation, the scientific experimentation in regard to the life of the sperm and the unfertilized ovum, and the statistics of clinical trial, we have a method for avoiding or accomplishing fertilization at will.

The purpose of this paper is not to be construed as advocating birth control. There is no sect or creed that forbids abstinence. The orthodox Jews were not permitted to have intercourse for seven days after menstruation had ceased, during which time the Jewess was considered unclean. Some ancient Jew may have had a fairly accurate knowledge of the physiology of fertilization, and timed inter-

course so that it would be most desirable and most effective by keeping the men and women apart for a week prior to the period of estrus and ovulation. It has been noted among Jews who still practice this orthodox custom that women with menstrual cycles as short as three weeks are usually barren; but by shortening the period of abstinence following menstruation they conceive.

The aptitude of the Catholic Church toward this method of avoiding conception is well put in the statement of His Eminence, Cardinal Bourne, Arch-bishop of Westminster, who said, "There is no law requiring married people to have large families and if they wish to live in continence they are entitled to do so but they are absolutely forbidden to exercise the act of generation AND FRUSTRATE its natural purpose."

Five to seven days is the maximum period of fertility during any one month in the average human female. A study of the variations of each individual cycle is imperative because there is no such thing as an absolutely regular cycle. Even with the variations of a day or two fertile periods may be accurately enough scheduled to require abstinence of little if any more than a week. If the wife is intelligent enough to know her sterile and fertile periods she can be free from worry and fear of conception for 18 to 20 out of 28 days. Recognizing the symptoms of ovulation increases the number of sterile days.

Information concerning her own body organs certainly should be available to any married woman. There is a crying need for sound medical advice on marital relations and the physician should be the source of information.

The physician cannot convey to his patients facts on ovulation, sterile periods and fertile periods, without knowledge of the physiology of fertilization.

Fertilization is the union of one spermatozoon with the female ovum or egg.

Usually only one ovum is liberated each menstrual cycle and only during the ovulation phase. Its span of life is only a few hours unless fertilized. It is dependent upon outside influences for locomotion.

Millions of spermatozoa are deposited in the vagina at each ejaculation; equipped with efficient means of locomotion (the tail) they may propel themselves two inches or more per hour,

perhaps through the uterus to reach the fimbriated ends of the tubes in two to three hours. **They do not live for weeks** in the female genital tract and are not capable of fertilizing an ovum after 72 hours in the female.

The pituitary gland—the motor of ovarian function—plays an important role in regulation of the phases of the menstrual cycle—by means of hormones.

The menstrual cycle has four natural phases: The follicular, the ovulation, the luteal, and the destructive, (F. O. L. and D. phases). The pregnancy cycle has these same four phases. (This is Dr. T. Mitchell Burn's<sup>1</sup> classification. He was the first to call our attention to the unanimity of the pregnancy and menstrual cycles.)

During the follicular phase gonadotropic hormone "A" from the anterior pituitary stimulates the growth of the ovarian follicle and the follicular hormone in this growing follicle in turn causes hypertrophy of the endometrium<sup>2</sup>. The endometrium during the follicular phase has long straight, narrow glands.

In the ovulation phase there seems to be a substance causing ovulation<sup>3</sup>. Perhaps it is only fractionary or more likely a combination of gonadotropic hormones, A. and B. In some animals, particularly the rabbit, intercourse is necessary before ovulation takes place and then it occurs within 10 hours. It can be brought about by the injection of prolan and even by mere handling. In the human intercourse is not necessary but there is evidence that ovulation may be hastened somewhat (24 to 48 hours) by intercourse. During the ovulation phase hypertrophy occurs in the glands of the endometrium.

During the luteal phase gonadotropic hormone "B" causes luteinization<sup>2</sup> of the follicle and the corpus luteum in the ovary in turn causes further hypertrophy and hyperplasia of the endometrium, in preparation for nidation. This has been called the pregravid endometrium. A broader term is needed for this type of endometrium because it is found more often before menstruation where there has not been fertilization.

The destructive or menstrual phase is precipitated by a substance which we designate as anterior pituitary destructive hormone which causes hemorrhage into the corpus luteum<sup>1</sup>. This is followed by endometrial sloughing and

bleeding—true menstruation. There has been much wrangling as to whether or not menstruation is ever anovulatory in the human female. Uterine bleeding is not always true menstruation<sup>1</sup>. Women may bleed at the time of ovulation.

The old theory was that the ovum came directly from the definitive germ cells which sprang from the primordial germ cells and that there were a limited number of these definitive germ cells present at birth and when these were exhausted the woman was ready for the menopause. The present accepted theory<sup>3</sup> is that the definitive germ cells come from invaginations of the germinal epithelium surrounding the ovary and that millions of ova are formed in the ovary just as millions of spermatozoa are formed in the testis; very few of the ova reach maturity.

Anterior pituitary hormone has little or no effect upon an immature follicle but upon one with antrum formation it starts the follicular phase. As the follicle ripens it approaches the surface of the ovary. The ripening process has been compared macroscopically to the ripening and rupture of a boil. At the time of rupture it is possible for many women to detect symptoms, not of pain necessarily but discomfort similar to indigestion.

Fertilization can take place only when sperm is deposited at or near the time of ovulation.

At the time of ovulation the plug of mucus in the cervix is characteristically clear and watery.

Fertilization takes place in the ampulla of the tube. The fertilized ovum is several days en route to the uterus during which time it grows to perhaps the mulberry stage.

Nidation takes place eight to 12 days after fertilization.

As the spermatozoon enters the ovum the second polar body is given off. The head of the sperm becomes the male pronucleus; the neck becomes the centrosome; the nuclei come together, fuse, and then separate and the cell is ready for division.

Fertilization from an intercourse immediately before a menstrual period is rare but cases have been reported and are cited as arguments against the safe period method. Some of these cases can be explained as being due to overlapping of phases for it follows that if ovulation always precedes menstruation by 14 days, a



woman who menstruates 14 days would necessarily be menstruating and ovulating at the same time. Sperm lingering in the ampullae of the tubes could easily fertilize an ovum from such an ovulation. If this newly fertilized ovum went directly to the uterus it undoubtedly would be washed out with the menstrual blood as the endometrium is not in condition for nidation at this time; but the ovum is several days enroute to the uterus during which time the endometrium prepares for nidation. Other cases can be explained like the case which will be reported later in this paper.

With an understanding of the phases of the menstrual cycle and with coitus coincident with, or different from, the time of ovulation a physiological method of accomplishing or avoiding conception usually is possible. Widely irregular cycles, incorrect determinations of the time of ovulation, carelessness and other factors, contribute toward lowering the percentage of success.

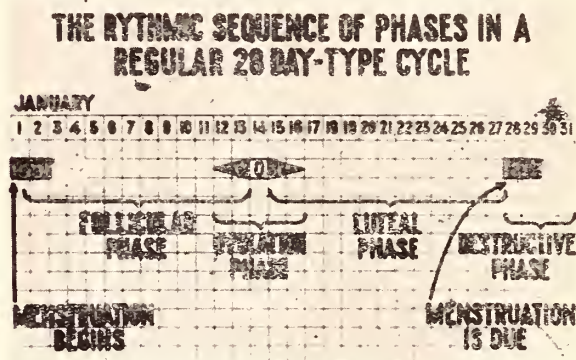
It is the duty of every physician engaged in general practice to familiarize himself with this physiology in order that he may adequately instruct his patients.

There can be no mixing or mistaking of dates if sterile periods are to be depended upon. Keeping accurate records of menstruation is the first lesson that should be taught the patient. Although menstruation "D phase" is the last of the four phases the beginning of the flow must be the basis on which to calculate the on-coming cycle. It must be borne in mind, however, that a menstruation does not govern the time of the succeeding phases; but by the expected date of the onset of the period based on a fairly regular periodicity it is possible, to chart with a fair degree of accuracy the phases of the on-coming cycle, and predict the time of ovulation and the sterile and fertile periods.

The rhythmic sequence of phases in a regular 28 day type menstrual cycle is as follows:

We may represent this sequence of phases with the letters F-O-L-D. Successive cycles follow the same rhythmic arrangement: F-O-L-D-F-O-L-D-F-O-L-D. Many women by careful observations may determine the exact times they ovulate. The symptoms are sensed in the region of the umbilicus, a region for referred pain from the 10th dorsal nerve. The symptoms to begin with are much like the dis-

comfort arising from gas in the intestines. There may be a slight bearing-down sensation similar to menstrual cramps. Variations of the severity of the symptoms from month to month

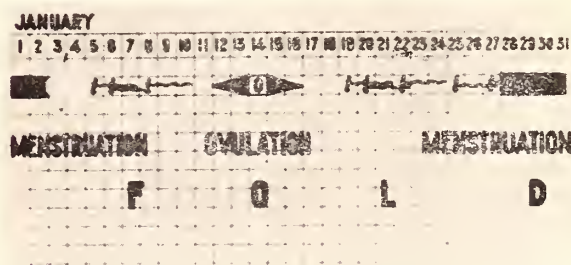


are the rule in most women. Slight increase in vaginal secretions is usual and bleeding at the time ovulation is more common than supposed.

When conception is desired intercourse should be on or just before the day of ovulation.

To recapitulate: To facilitate the calculation of the periods of fertility and sterility, the following facts must be considered: Even in women with regular periods a day or two variation in the time of ovulation is to be expected; sperm retains its fecundity for 72 hours; ovum is capable of being fertilized for a maximum of 48 hours; the symptoms may be felt some hours before actual rupture of the follicle occurs.

In the following chart "i" indicates intercourse and the wavy line represents the length of the life of the sperm. Sperm must live to the day of ovulation for conception to take place.



In cycles longer than 28 days there is a rest period between the phases (designated by x). This corresponds to the lation period of the reproductive cycle. Diagrammatically, the cy-

cle is: F-O-L-D-X-F-O-L-D-X-F-O-L-D-X. In cycles shorter than 28 days, i.e. a twenty-one day menstrual cycle there is an overlapping of

F-O-L-D

the phases as:           F-O-L-D           Hence  
  F-O-L-D

menstruation in one cycle is simultaneous with folliculization in the succeeding one, and intercourse immediately following the end of menstruation in this type will result in conception, because ovulation occurs about the same time.

In the rare 14 day cycle, overlapping of the phases is even more pronounced as:

F-O-L-D

F-O-L-D

F-O-L-D.

Because of variations in the time of ovulation it is imperative for the physician to study the menstrual cycle in the individual patient. Many charts are available which simplify determinations of periods of fertility. One of these is the "ovulation time table." It is the only one which calls attention to the symptoms of ovulation. Recognizing the symptoms is the key to success in application of the method.

One other caution: Do not confuse ovulatory bleeding and "Mittelschmerz" with menstruation. Many women, especially those who give histories of short cycles now and again are having ovulatory bleedings between menstrual periods. I can best illustrate this point by citing a case:

A white woman, 25, was seen November 2, 1934 complaining of nausea of four days duration. Menstruation was of fairly regular 28 day type. Last two periods were early, September 16 and October 4; the period on September 16 about four days early; one day overdue. Questioned about period on October 4, admitted it was scanty but she had spotted for three days. Questioned about the possibility of pregnancy she admitted a single intercourse on October 2nd, just previous to the last menstruation on October 4th. Examination revealed she was undoubtedly pregnant—confirmed by the A.Z. test. At first glance it would appear that she was a perfect case against the safe-period theory; but let us analyze: The menstruation on September 16th was about four days early. Usually if one period is early, the next period is correspondingly late, and we would not ex-

pect the next period until October 16th to 18th. If menstruation was due October 18th, ovulation was due October 4th. This is the day she had bleeding. Intercourse had been indulged in two days before, at the ideal time for fruitful coitus, and during the theoretical time for estrus for women.

The efficacy of the safe period method, as shown by many investigators, is about 97 per cent. The most skeptical women eventually become the most enthusiastic disciples of the method, once they find they can detect the symptoms of ovulation. It is intensely interesting to analyze a series of menstrual cycles and one will be surprised to find how many women can be taught to recognize ovulation, if he will but spend a little time explaining the physiology, and when, where and how to look for the symptoms. Usually the unnatural contraceptives are discarded within a few months after this method is learned. Patients should be warned that all contraceptives fail sooner or later in fertile periods.

The average young couple today is not shirking responsibility of offspring. In most homes children are wanted. Most pitiful are those homes where nature has denied them. Proper instruction as to the use of the most likely time for conception has brought happiness to many couples who believed themselves sterile. I earnestly believe that physiologic timing of fertilization and of offspring will permit better pre-natal care, better obstetrics, better pediatrics and finer babies than when they come at no designated time and no chosen intervals.

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The Maricopa County Medical Auxiliary announces that it is interesting itself more and more in the promotion of health education. Regular meetings are held the first Monday of each month. Invitations have been issued by the auxiliary for a Japanese Sukiyaki dinner for Dec. 5, 1935, at the home of Dr. and Mrs. Ferd G. Holmes.



## A PREVENTION OF BLINDNESS PROGRAM FOR NEW MEXICO

LEWIS H. CARRIS

Director, National Society for the Prevention of Blindness.

(Read before the New Mexico Public Health Association, May 1, 1935, in Santa Fe.)

I am here on invitation of your State Director of Public Health to discuss with you the planning of a prevention of blindness program for New Mexico. In making preparations for this task, I am torn between two desires. My first desire is to set the standards high, since your new health district plan gives you a corps of trained public health workers who are already aware of the needs which I shall present and, I assume, eager to meet those needs. On the other hand, I am aware that, even with your new set-up, you will not have overcome the handicaps due to distance and scattered population, to the variations in language and customs among your people, and to the remoteness and inadequacy of facilities for medical care. Therefore, my advice in general is that you be guided by the principle of "helping others to help themselves." By this I mean that it is desirable to make every possible use and adaptation of available facilities, to give to responsible volunteers knowledge and skill which will supplement the services of your staff, to stimulate public opinion to support your requests for appropriation and authority, and to organize demonstration projects in limited areas, giving publicity to achievements in order to encourage other districts to follow the example.

Our experience has shown that best results are obtained where the responsibility for the program is centralized. This does not mean that the varied activities, many of which are not undertaken primarily for conservation of vision or prevention of blindness, should be under the direction and supervision of a single individual or committee. It does mean that such individual or committee shall review all existing and contemplated programs in order to advise on the incorporation of specific items or activities that will help to prevent blindness. To be well prepared for this responsibility, at least one member of this group should devote time to intensive study of the subject and

should be in continuous touch with sources of information and new developments. If it should prove feasible to have a member of your staff devote considerable time to this phase of public health work, the National Society for Prevention of Blindness will cooperate in giving necessary preparatory training.

Since I am not familiar with details of your organization or plans for extension of health services already worked out, recommendations which I make as to handling specific problems are to be considered as merely suggestive. The important thing, as I see it, is to present the activities essential in a well-rounded prevention of blindness program. These are:

**Prevention of Congenital Eye Defects Due to Venereal Diseases:** In setting up a venereal disease control service you make a real contribution toward prevention of blindness. The National Society for the Prevention of Blindness has allied itself with other national health organizations and with the American Medical Association to educate the public to appreciate the importance of including in the prenatal care of every pregnant woman laboratory tests to detect gonorrhea or syphilis that infected mothers may be treated and babies saved from blindness, eye defects and other handicaps due to venereal disease. Therefore, we strongly recommend:

That your state and district health bureaus reinforce this teaching by incorporating similar suggestions in their own prenatal literature; that you make maximum use of the educational material which will be presented to you from time to time by our own and other national organizations; and that in the venereal disease control service which is being organized for the state, particular attention be given to providing facilities for examination and treatment of pregnant women.

**Prevention of Ophthalmia Neonatorum:** Your state bureau of health is already requiring the use of a prophylactic in the eyes of the newborn, the reporting of cases, etc. Although statistics from the school for the blind may not be entirely reliable, it appears that the incidence of blindness due to ophthalmia neonatorum is high in New Mexico. Dr. Earp believes that cases occur most frequently among families which do not call in trained attendants at birth. It would seem desirable to strengthen the control procedures in the following respects:

Intensive instruction to licensed midwives in the technique of applying the prophylactic and importance of prompt reporting of suspected cases; an intensive study of all cases occurring during a

limited period to discover weak points in the procedures and in enforcement of regulations; adequate medical and nursing care in each health district or county; increased amount of free prophylactic to be omitted if parents object to its use, should this prove a real obstacle to enforcement; public education on the importance of preventive measures, making special effort to reach all prenatal cases; and facilities for diagnosis and treatment of gonorrhea in pregnant women.

**Care of Eyes during Pre-school Age:** When plans are being made for preventive health service include vision testing and eye examination. In planning corrective eye service for school children, consider also the needs of the preschool age group. (Example: development of squint clinics.)

**Care of Eyes during School Age:** Whether this service is the responsibility of the school authorities or of the health bureau, certain essentials should be provided for.

With limited public health nursing service available to each school, it will be important to arrange for the training of teachers to detect the children needing orthalmological examination by means of vision testing, eye inspection and observation of symptoms of eye difficulties. Teachers may also assist in follow-up.

Facilities for correction of vision defects or treatment of eye diseases should be available continuously in each district or at least periodically through traveling clinic services. Since the medical directory shows only 14 physicians specializing in eye, ear, nose and throat work, located in seven counties of 31, the need for eye service in the state is evidently out of proportion to the available physicians. **Your state medical society might be interested in working out a cooperative plan to increase facilities for this important branch of medical service.**

Inspection of classroom environment and teaching methods to detect factors which may affect eye health and comfort of children is another essential. We understand that the State Department of Education has already incorporated in its requirements for "approved" schools the essential items included in the National Society for the Prevention of Blindness appraisal form and has made a wise use of work relief funds in bringing some schools up to standard. With guidance both teachers and pupils can contribute to the check-up of classrooms and be taught to make best use of available facilities.

Material on eyes should be included in the health education curricula and an opportunity should be given to apply desirable eye health habits in schoolrooms.

Facilities should be provided for special education of children who are not blind but have vision which is so poor as to make the use of ordinary textbooks, etc., difficult or unsafe. Since there will probably not be enough of these children in any one place (with the possible exception of Albuquerque) to warrant the establishment of a sight-saving class, it is recommended that the state department of education keep available special equipment to be supplied to teachers upon request, this service to include advice on special methods and eye care. Approximately 200 children will need this type of help. If no other plan seems feasible, sight-saving classes can be established in connection with the school for the blind, classes

to be conducted by specially trained teachers using approved methods and equipment. Apparently some of these children are already enrolled in the state school for the blind.

**Prevention of Eye Accidents:** We recommend:

The inclusion among your health education publications and lectures of material related to the prevention of eye injuries from industrial hazards, firearms, fireworks, dangerous toys, automobile glass; and an investigation (in cooperation with the state labor department) of processes involving eye hazards in industry, followed by the establishment of necessary safety regulations, such as wearing of goggles, use of machine guards, etc., to guard against these hazards.

**Education of the Public on Eye Care:** We advise the inclusion in publications, lectures, etc., of information on the importance of good eye habits, the value of periodic eye examination, the need for special care of eyes during periods of illness, recommendations on restricted eye use during convalescence, etc.

#### **Facilities for Eye Care:**

As already mentioned in connection with medical care for school children, the medical society and health bureau should work out a plan for bringing into each district (preferably each county) a physician specializing in eye work, at least periodically. This service should include corrective treatments and surgery in addition to examinations.

Apparently the trachoma problem in your state is confined to the Indian population, hence there may be no need to supplement the work of the United States Public Health Service among Indians.

The school for the blind and organizations working with adult blind should, as a prerequisite to entrance for other services, require adequate ophthalmological examination to determine the cause and extent of the handicap. Ophthalmological service to this group should include such surgical or medical treatment as may be necessary to give maximum improvement in vision. Standards for admission to schools for the blind should be adopted.

The services of medical social workers or public health nurses should be available in making contacts between patients and ophthalmologists and in keeping under treatment cases in danger of blindness.

If this list of suggestions has seemed to you interminable and quite out of proportion to your available funds and personnel, you may be glad to know that I am not so optimistic as to believe that you can start with a full program. This summary was intended to give you a bird's-eye view of your state some years hence. My advice would be that you build your program gradually and build it for permanency.

In conclusion, I wish to emphasize again the importance of centralizing in a single person or group the responsibility for coordinating existing services and developing new ones.



## PROSTATIC OBSTRUCTION

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Pasadena, California.

(Read before The New Mexico State Medical Society at its Fifty-third Annual Session, held at Albuquerque, N. M., May 23-25, 1935.)

Radical changes in the method of treating any disease not only arouses enthusiasm among its originators, but usually incurs an even stronger opposition among those who have used a well established procedure for many years. The medical profession as a group usually approve that trite saying, "never be the first by whom the new is tried nor yet the last to lay the old aside." At the present time the treatment of prostatic obstruction is undergoing radical change and it seems pertinent therefore to review and evaluate the newer ideas and methods of treatment.

First let us consider the question of abruptly emptying a bladder that has become greatly distended from the chronic retention of urine, the result of prostatic obstruction. In the past it has been held imperative to empty such a bladder slowly, consuming from many hours to many days in the process because of fear that the abrupt withdrawal of urine may result in serious, if not fatal, consequences. Creevy<sup>1</sup> points out that there is no proof that abrupt withdrawal of urine is responsible for fatalities and believes that the frequent serious reactions are due to infection from catheterization. To prolong catheterization over a period of hours or days, he asserts increases the chances of infection from which the majority of cases die. He was unable, in 68 postmortems which he studied, to find evidence that death may result from the mechanical effect of sudden emptying of the bladder.

Such patients are usually markedly dehydrated with dry tongue and skin, all available fluids in the tissues having been drawn upon to dilute the ever increasing nitrogenous end-products. The kidneys, damaged by long continued back pressure, can only secrete in greater and greater dilution so that the specific gravity of the urine becomes lower and lower, and a greater fluid intake is necessary to meet this need. It is, therefore, better to empty such a bladder at once to rid the patient of as much

toxic material as possible, and at the same time to commence intravenous administration of normal saline solution. This, if given slowly, may be continued for hours until many liters have been absorbed. Fluid by mouth is not so efficacious, and if pushed beyond tolerance, which is frequently low, may lead to water intoxication, a most serious complication in these dehydrated old men.

**DRAINAGE:** If the amount of residual urine exceeded 100 to 150 c.c., it formerly was considered by many to be good practice to leave the catheter in place in the urethra. The patient then underwent a so-called period of preparation, prior to operation. Clinical experience has now taught us that such a period of preparation is not desirable in all cases.

If the renal function is markedly impaired, preparation before operation will improve it, but if renal function is adequate, a period of drainage becomes unnecessary and may be harmful. Cabot and Mealand<sup>2</sup> in reviewing a large series of cases show that if the urethral catheter is left in place for an extended period, a marked febrile reaction is apt to commence on about the fifth to seventh day with all the classic symptoms of an acute pyelonephritis. The natural secretions of the urethra having been blocked by the indwelling catheter and the prostatic urethra traumatized by its presence, bacteria readily enter the blood stream from such a favorable point of absorption as the posterior urethra. Before an acute infection is overcome, the patient has usually lost ground physically, and his renal function is apt to be temporarily impaired rather than improved.

If damaged renal function makes drainage imperative for an extended period, then suprapubic drainage is the method of choice. If this is carried out under a local anesthetic without opening the pre-vesical space or exposing more of the bladder than is required to insert a catheter, little systemic disturbance results. When drainage is required for a short period, intermittent catheterization is less likely to result in secondary infection.

**Infection:** Until recently many of the complications following surgery of the prostate, and not an inconsiderable percentage of the mortality, was attributable to inadequate renal function resulting in uremia or cardio-vascular

disease. Sufficient preliminary treatment in properly selected cases has removed the menace of uremia, and the electrocardiogram has warned against the placing of too great a strain on a weakened myocardium. Today infection is the chief obstacle to uneventful convalescence, and the most frequent cause of death. In the past too much dependence has been placed on urinary antiseptics, and aseptic technique too frequently disregarded. For instance, catheters are frequently inserted with elaborate aseptic technique and then allowed to drain into bed urinals. Such receptacles are teeming with bacteria, and if the bladders are irrigated these organisms are washed back into them. When the urinals are emptied, the ends of the catheters fall against the anus and a direct subway entrance, as it were, is provided for bacteria from the bowel to the bladder.

All drainage from the bladder should run through sterile tubing to receptacles outside of the bed and the connections should never be opened except under aseptic precautions. If this technique is followed, one will be surprised at the diminution of postoperative febrile reactions. It is also well to remember that it is difficult for the more common bacteria, which frequent the urinary tract, to live in acid media while some of the most virulent and resistant types flourish in alkaline urine; therefore, the rendering of the urine bactericidal by its acidification is advisable. This can be accomplished by the giving of ammonium chloride or ammonium nitrate by mouth in the majority of cases, but in some individuals considerable difficulty may be encountered in lowering the pH of the urine sufficiently to stop the growth of bacteria. In such cases, the placing of the patient on a ketogenic diet for a week to 10 days will usually increase the acidity of the urine so the pH reading will be below five. Such a diet, in addition to producing a germicidal effect from the increased acidity, also liberates beta-oxybutyric acid in the urine, which Fuller<sup>3</sup> has demonstrated is the chief factor in the germicidal effect of the urine.

Such diets are difficult to take and must be closely adhered to if favorable results are to be obtained. Clark<sup>4</sup> has recently tried to simplify them so that they may be prescribed without detailed dietetic knowledge by the physician and prepared in the average home

without special supervision. His menus are so arranged that regardless of the items selected from the different groups, the daily intake of food will consist of carbohydrates 15-20 grams, protein 35 to 50 grams and fat 300 to 325 grams. His most simple combination consists of one and a half pints of 40 per cent whipping cream and six eggs a day. Such a dietary regime has frequently proved valuable as prophylactic measures before undertaking surgical correction of the prostatic obstruction.

**Transurethral Resection:** In advising a man with an enlarged prostate as to the best method of treatment, his clinician was formerly confronted with the relative merits of the suprapubic and the perineal operations. The former being technically easier was more generally used, for, in spite of its higher mortality it was more likely to be followed by good functional results. The perineal operation incurred a much less risk to the patient's life but unless carried out by the specially trained was apt to have a poor functional result. Today transurethral resection seems to combine the advantages of both the former operations and has fewer of their disadvantages. However, like the perineal operation it requires special training and is not a procedure for the occasional operator. Both older operations were designed to remove the entire mass of hypertrophic tissue though only a small portion of it might be causing the obstruction; the prostatic urethra being barely one cm. in diameter an exceedingly insignificant amount of tissue may seriously obstruct it.

A normal prostate weighs from 18 to 23 grams, and in checking the weight of 575 consecutive specimens removed suprapubically<sup>5</sup> I found that only 33 per cent weighed more than 50 grams. So it is evident that in the great majority of cases of urinary obstruction due to prostatic hypertrophy removal of tissue up to, let us say, 25 grams, should eradicate the obstruction and restore function. Such an amount can readily be removed through the urethra.

This fact is responsible for the rapid replacement of prostatectomy by transurethral resection in spite of many unfortunate complications and not a few fatalities that have attended the use of this newer method by the inexperienced and untrained. During 1934 my former associates<sup>6</sup> at the Mayo Clinic applied this method of treatment to 630 cases with but two



deaths. The instrument used was one I developed incorporating the punch principle of excision as first advocated by Young with the direct cystoscope of Braasch. This instrument gives adequate vision even in the presence of considerable bleeding and removes the obstructing tissue by cutting with a knife instead of burning with a desiccating current, a most important difference, for incised tissue heals rapidly while coagulated tissue must not only heal but the eschar must slough away or be absorbed, all of which greatly prolongs convalescence and invites secondary infection. Dr. Thompson", in his recent report, states that all but 13 per cent of the 630 cases just referred to left the hospital within two weeks.

Transurethral resection is applicable to all but the largest glands provided the patient is willing to spend the time necessary for multiple resections, for to remove more than 25 to 30 grams at one time is usually to prolong the operation beyond the time limit at which the best results are obtained. Experience has shown that multiple resections are preferable to a prolonged single procedure in which trauma to the urethra, may be excessive.

The permanency of this new procedure compared with prostatectomy has been questioned. I find about four per cent of my cases returning—a percentage of recurrence that is a little less than the possibility of death was by the suprapubic method. These recurrences are given the choice of prostatectomy or a second resection. To date none has chosen prostatectomy.

Transurethral resection today stands in much the same place as that in which lithotripsy stood in Bigelow's time. The principle of transurethral resection is sound, and is based on the same reasoning as is litholapaxy, namely, that it is unnecessary and often dangerous to perform a major operation in order to remove in its entirety an obstruction to the urinary stream that can be removed equally well in small segments, at much less risk to the patient.

Although litholapaxy has been standard for 50 years, and even been considered by some urologists as an office procedure, yet today suprapubic cystostomy, for removal of stone in the bladder, is far more frequently employed than is litholapaxy.

Fifty years from now I dare say it will be equally well appreciated that transurethral resection is a safer procedure than is prostatectomy and that the duration of hospitalization for transurethral resection is short in comparison with that for prostatectomy. However, prostatectomy may still be more frequently practiced, for the same reason that suprapubic cystostomy for stone is used more frequently than is litholapaxy. An instrumental procedure such as transurethral resection requires skill and special training, whereas suprapubic prostatectomy requires but little of either.

The patient on whom litholapaxy or transurethral resection is performed usually can return to his occupation in from a few days to a week or two. He has, as a souvenir of his adventure, a few fragments of stones or a few small chips of tissue. In contrast is the patient from whom a stone or prostate gland has been removed suprapubically. He has had weeks in the hospital, with a suprapubic drainage tube part of the time. He can show the removed stone or prostate gland and when "speaking of operations" can exhibit the scar and not infrequently a good-sized postoperative hernia. He is much more likely, of course, to consider the surgeon's skill favorably than is the patient who has none of these physical signs of his encounter with a member of the medical profession to exhibit, and has simply resumed normal urinary function after a short period of partial incapacity. I stated that 50 years might find resection in the same position as that occupied by litholapaxy today, but this seems doubtful, for if surgeons tend to be too conservative, erring on the side of what they consider to be safety, the public does not. Stones in the bladder are comparatively rare, and the value of litholapaxy as a curative procedure is not generally appreciated by laymen. Prostatic hypertrophy is common, and many of those who are afflicted are at the age of retirement and have little to do on returning home but to discuss experiences. When these experiences have consisted of only a few days in the hospital, and when the functional result is the equal of, and often is superior to that of a neighbor who has put in six long weeks undergoing prostatectomy in two stages, it is going to be increasingly evident to the patients. They are little concerned with dogma, and

much with what they think of as horse sense. They know that a procedure that requires weeks of hospitalization and carries a high mortality rate is not so good as one that carries a mortality rate of approximately one per cent and usually entails hospitalization of less than a week.

The cause of hypertrophy of the prostate has remained during all these years an unsolved problem, although the literature has never been lacking in the presentation of theories. This year, however, the solution seems nearer. Lower and his associates at the Cleveland Clinic have isolated a water soluble hormone from the testicles of bulls. This they have named "inhibin" because they believe it inhibits the gonad stimulatory hormone of the anterior pituitary. This later hormone, familiar to many as "antuitrin S," is presumed to stimulate the interstitial cells of the testes to excrete "androtin," the male sex hormone. This in turn causes the prostatic hypertrophy and the resulting urinary obstruction. Because this hypertrophy usually occurs at the time of diminished sexual activity, they believe that inhibin comes from the spermatogenic cells, and as their activity diminishes, inhibin diminishes and androtin increases, and with it prostatic enlargement occurs. With the administration of inhibin they hope to shrink the prostate much as the administration of antuitrin S is employed to enhance the descent of the testicles. As a prophylactic measure it sounds encouraging; as a curative procedure after hypertrophy has occurred its efficacy remains to be demonstrated.

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## TREATMENT OF FRACTURES OF THE FEMUR SHAFT

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Denver, Colo.

(Read at the meeting of the New Mexico State Medical Society at Albuquerque, May 23, 1935, at its Fifty-third Annual Session.)

Our ideas on the proper management of fractures have been radically changed, especially as regards fractures of the shaft of the femur. Our general trend is toward more conservative and efficient measures. The increasing incidence of fractures in traffic accidents and the greater demand by insurance companies for satisfactory results in industrial injuries, not to mention the great lessons that were learned about fracture treatment during the World War, have spurred the orthopedic surgeons to more thorough methods.

We must review the various femoral shaft fractures as to type—simple, compound, or comminuted—the line of fracture—transverse or oblique—the location, the deformity, and finally the complications. In many cases the break in the bone is the least important part of the injury, being quite secondary to traumatic shock, hemorrhage, and nerve disturbances. Hence we must include in our therapy the consideration of the hip and knee joints, for after all the final result will be judged more by the weight bearing alignment and joint function than by a slight shortening or bony angulation.

After diagnosis by history of injury, pain, loss of function, localized tenderness, deformity, shortening, false motion and pain on active or passive movement, we must determine whether treatment should be instituted for pain, shock, hemorrhage or other soft tissue complication. After first aid treatment, transportation to the hospital must be effected.

Take care of shock and hemorrhage first. Then decide what portion of the shaft is involved and upon the deformity and, or, shortening. In general the site of the fracture determines the character of the deformity and method of treatment; in cases of direct violence any deformity may be found.

We may have the extracapsular fracture of the neck involving the trochanter with the



flexion, abduction and external rotation of the upper fragment; the intertrochanteric type separating the two trochanters with more abduction and external rotation of the central fragment shown by displacement backward of the greater trochanter, and displacement forward of the lesser; at the junction of the upper and middle thirds of the shaft, the proximal fragment in marked flexion, abduction and external rotation, the distal in definite adduction on account of the strong thigh adductors making a prominent lateral angulation; we must consider the possibility of producing a coxa valga or increase of the normal angle between the neck and shaft from exerting too much pull in the wrong direction. A fracture through the mid shaft is less difficult to treat because there is less abduction of the upper fragment which is held in check to a great degree by the thigh adductors. In lower fractures, of the supracondylar type, we have an entirely different picture—lower fragment displaced in a different direction. It is pulled far backward behind the upper fragment by the strong gastrocnemius muscle and points into the popliteal space, possibly hurting the popliteal nerves, and usually causing a great swelling of the knee from hemorrhage into the joint. Other fractures include those of a part or all of one or both condyles, and lastly those with comminution into the knee joint. Thus we see that the site of fracture determines the deformity, especially as relates to the amount of abduction of the upper fragment and to the amount of flexion of the lower fragment. And when we realize that the principle of treatment is to bring the lower controllable fragment into the alinement or direction of the central or uncontrollable fragment, we can see how important it is to determine the displacement or deformity.

In addition to the site of fracture, treatment will depend on whether the fracture is transverse or oblique. Likewise we want to know if the patient is very muscular, if he is cooperative or unruly, and lastly of course it is important to remember that the treatment is decidedly different for old fractures with malunion or failure of union. Consideration must also be given to pathological fractures such as occur in new growths, chronic infection, syphilis, and endocrine disturbances.

**Fundamental mechanical principles must be**

brought into play. The purpose of this paper is to advocate certain sound mechanical principles and simplified measures. We can usually avoid open surgery which is often responsible for long delayed convalescence. I am indebted to Bohler of Vienna and Magnuson of Chicago for much sound reasoning, especially in reference to certain almost standard types of splints and methods of traction.

Let me briefly mention some high-lights: Study the muscles and their pull; bring the fragment which can be controlled into alinement and rotation with the fragment which cannot be controlled; treat the wound, then after recovery from shock reduce the fracture; shock is caused by fracture and made worse by handling; early traction must be maintained; alinement is more important than slight shortening; every fracture must be reduced by traction and counter-traction; Wolff's law of adaptation of a bone to its muscle pull and proper function does not help to overcome poor joint alinement; lesions of soft parts are often more important to consider in treatment than fracture of bone; anesthesia, general or local, should be insisted on in all fractures.

Treatment begins with first-aid. If the injury has occurred at some distance from the hospital our first duty is that of emergency routine preparatory to transportation. Shock must be combated by warmth to the body and coffee rather than alcohol.<sup>6</sup> Morphine helps. Hemorrhage may require a tourniquet, and temporary sp'int like the Thomas. A long board may be used from the axilla to the ankle. An open wound should be covered aseptically. On reaching the hospital a compound wound is treated by thorough cleansing, a debridement under anesthetic to remove necrotic tissues, and tetanus and gas bacillus prophylaxis; close the wound by primary suture or leave it open and irrigate with antiseptic like Carrel-Dakin.

Determine the location and type of fracture by clinical and x-ray examinations. In simple fractures or compound ones where no general anesthesia has been given, Bohler advocates the immediate injection of 20 cc. of novocaine between the fragments after a preliminary anesthesia of the skin, preparatory to reduction and application of traction upon a suitable frame with or without suspension. Traction may be by moleskin adhesive to the thigh, or

to the thigh and leg, attached to a spreader and rope going over a pulley to connect with sufficient weights or by the Steinmann pin or Kirschner wire through the femoral or tibial condyles, or the icetongs above the femoral condyles. The splint used for holding the limb in traction may be either the Hodgen splint with the bend at the knee, or the more recent Thomas splint with the Pearson attachment to accommodate the flexed knee, or the Braun frame. Extension is accomplished by direct skeletal traction on the femoral fragment with the leg held in flexion, or by indirect means by pulling on the splint, which in turn pulls on the leg by adhesive traction while the knee is flexed, making the actual pull against the calf muscles in the direction of the axis of the upper femoral fragment.

Traction must be in the direction of the upper fragment sufficient to overcome the shortening—and continuous. Shortening can usually be readily overcome by local anesthesia, with the line of the lower fragment controlled by proper abduction of the splint. In the fractures, just below the trochanters, the splint must be oblique in relation to the axis of the bed, less oblique in fractures of the upper third and in a straight line with the bed in mid shaft cases. In supra condylar fractures an entirely different angulation at the fracture site obtains, for the lower fragment is thrown backward. The angle of the splint must be greatly increased at the knee, often to a right angle, so as to bring the distal fragment into alignment. In case of a fixed angle at the bend of the splint, the knee must be placed further down the splint so that the bend of the latter pushes forward directly against the lower fragment.

I believe this sort of management will take care of the great majority of femoral shaft fractures in adults. In children a simple Taylor hip splint with two perineal straps will often be sufficient, as advocated by the late Dr Hibbs of New York, while in young children or infants overhead extension to both limbs with adhesive traction will be sufficient. In children we use a "traction cast" after two weeks with the Taylor brace which consists in traction by adhesive plaster to the limb reflected into the plaster of Paris, while counter-traction is obtained by two perineal straps and buckles incorporated into the body of the cast.

Though I stress that the great majority of femoral shaft fractures can be satisfactorily managed by the closed method with weight extension or traction, instead of fixation alone, I realize there is a definite field for open fixation. We must include in this field those few cases where the fragments cannot be approximated on account of the interposition of soft parts, or where there has been too much shortening from the lapse of time, or where the patient is absolutely uncooperative and unruly. Likewise, in old fractures with malunion or non-union, we need open operation. And I would add that in strong healthy men time often can be conserved by open reduction both in transverse and oblique types. Open fixation demands asepsis after the method of the Lane technique where not even the gloved finger is allowed to enter the wound. A Hawley fracture table should be used so that traction may be maintained during the operation. After a lateral incision is made to expose the fracture and the fragments gently brought into view in cases of recent fracture, we must refrain from elevating too much periosteum. We have a choice of several methods, remembering that the less foreign material we introduce into the serrated edges of the two fragments will allow accurate reposition. This may be combined by the introduction of chromic catgut through drilled holes. The Lane plate with four or six screws is the method of choice in the muscular individual. The Parham or Collins band placed around the shaft will lock bad oblique fragments. I condemn the wiring of fragments and the intramedullary pegs. The latter, while it may seem practical, is not sound because it eliminates the marrow cavity and destroys nourishment of the cortex. An inlay or onlay bone graft is preferable to the intramedullary peg, but in my opinion is not adaptable to the femur but has its place in the tibia, humerus, radius or ulna.

In old cases of malunion, it is necessary to separate the fragments (possibly to shorten them after getting rid of the excess callus) and then appose them properly. In non-union it is necessary to remove the sclerosed ends of the fragments until good bleeding is found before approximating the fragments. It is in these cases that grafting is to be seriously considered. In closure of the wound, suture without drainage.



Now let me add one point which occasionally we find neglected. It is essential to remember that internal fixation of fragments is only part of the treatment in open reduction. An adequate case or splint must be applied, as though no internal fixation has been used, and by these external fixations we refer to traction casts or traction braces, for otherwise we will be often embarrassed by the later buckling or slipping by of the fragments.

In conclusion: Closed reduction is more to be desired than the open for the following reasons: Less immediate infection; less late infection; less shock and lower mortality; less time and less cost to patient. In adults the best closed method is by traction with weight extension instead of fixation because in the latter alinement cannot be as well maintained, the fragments may buckle or slip by each other. Also with traction further correction or adjustment may be made from day to day as required. The traction may be either skin or skeletal, the latter utilizing the icetongs or Steinman pin or Kirschner wire. The skeletal traction is better because it allows more pull, and it does not slip. It need not be painful. With the traction we must have a proper splint or brace instead of the less effective Buck's extension. The necessary abduction of the lower fragment can be obtained with flexion of the knee by angulation in the splint. We can thus pull on the leg as well as on the thigh, thereafter either directly by skeletal traction or indirectly by pull on the splint. The patient may shift his position for comfort, for the bed pan, or for exercising the hip joint. Overhead suspension adds to these possibilities.

In children closed reduction is almost always indicated by Taylor brace and traction cast.

Open operation is indicated where closed reduction is not possible in muscular or unruly patients, or where interposition of tissue occurs or in old ununited or malunited fractures. The methods of choice are: Simple apposition; catgut fixation through drilled holes; Lane plate in transverse fractures; Parham band in oblique fractures; bone graft, but never the intramedullary peg; and complete the treatment by adequate external fixation with or without traction.

Soft tissue complications, such as hemorrhage, nerve injury or infection, often require treatment before bone fracture. Shock is the

first factor to be considered. There is nothing gained in setting a fracture in the presence of shock.

Accurate apposition is not necessary if general alinement is obtained with slight shortening. Good weight bearing alinement is much more important than bony apposition, because joint strain is a real disability.

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## THE TREATMENT OF BRAIN TUMORS

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HANS V. BRIESEN, M. D.  
Los Angeles

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To mention the word cancer to a lay person is to cause despair even though many cancers are slow growing and amenable to surgery. Likewise, to mention brain tumor to the medical profession at large is to begin sad shaking of the head, even though many brain tumors are slow growing and amenable to surgery.

The diagnosis, treatment and pathology of tumors of the brain are closely allied and should be discussed together. Prefacing Dr. Percival Bailey's book, *Intracranial Tumors*, is a statement by Foster Kennedy: "He who cares for patients suffering from brain tumor must bring to his problem much thought and stout action. There is need also of a formidable optimism, for the dice of the gods are loaded." The first sentence is true; the second is rapidly losing its significance.

Brain tumors may be always regarded as emergencies; their treatment—conservative or radical—has much to offer. The results in this field compared to others with only their emergencies considered are not so unequal.

Brain tumors do not metastasize and in this sense few of them are malignant. However, they do grow, and the capacity for expansion is so limited that they may cause irreparable damage to the brain. They cause increased intracranial pressure; especially do the more rapidly growing types. It is against these developments that treatment is directed: First, removal if possible; second, retardation of growth. These procedures failing, we strive for relief of pressure. Removal is by surgery. Relief of pressure is by surgery and by dehydration measures. Retardation is by radiation. There is no adequate medical treatment. Hypertonic

intravenous injections, salt or glucose, purgation, and other forms of dehydration can be used temporarily in cases that are suitable, and convulsions can sometimes be controlled with sedatives or magnesium sulphate.

In diagnosis it is necessary to consider three factors: The location of the lesion, its nature, and if a tumor, its pathological type. The treatment depends entirely upon these three factors. The cranial vault must be opened in the right place. If the localization is accurately determined as deep in the brain, mid-brain, or brainstem, surgery for removal should certainly be withheld, though surgery for relief of pressure may be considered. If the pathology is determined, we may avoid operating for tumors which are surgically not removable. The difficulty in diagnosing the pathological type makes it necessary that we undertake surgery in cases predestined to failure. In the majority, having made a diagnosis and localization of brain tumor, removal should be attempted; with careful, skilled technique and an understanding of the anatomy and histology of the brain, as well as of the neurosurgical problems involved, this can be done successfully in those cases where it is possible and can be abandoned with little harm to those where the lesion is beyond reach.

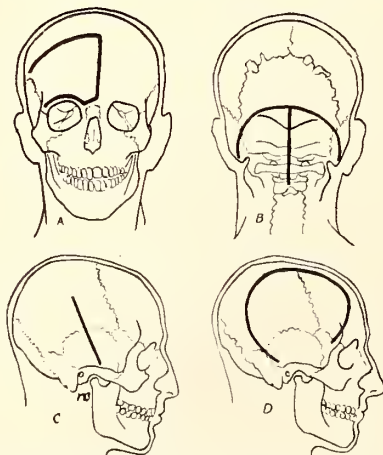
The differences between operating upon the brain and other parts of the body are: The risk of shock is much greater; respiratory paralysis is usually impending before operation; the silent and vital centers are not well defined and yet must be accurately considered; and the

blood vessels and tissues will not support the weight of surgical instruments. As far as direct operative procedure is concerned, other than the care of parts of the brain essential to life and movement, hemorrhage is the greatest obstacle. The structure of the scalp, bone, and nervous tissue call for special methods of hemostasis and unless this is meticulously done, an operation lasting several hours can allow loss of blood to weigh the balance against the patient. Every patient must be typed and a donor be on hand for immediate transfusion if necessary. The neuro-surgeon's equipment includes special clips, hemostats, the electric knife, cautery, and other instruments. Bits of muscle tissue are used to stimulate coagulation, and the clearing of the field of blood is done with saline washing and soft cotton pledgettes to avoid damage to tissues.

The choice of anesthetic is not great. Where the patient can cooperate and is in good condition, local should be used. It is necessary only in skin as other parts are comparatively free of pain fibers. If local is not feasible, ether should be used, preferably administered by the intratracheal method. Drugs depressing the blood pressure or respiratory center should be used with the greatest of caution and for this reason preoperative medication is avoided, and although success has been reported with these drugs, they should be looked upon, along with avertin and the sedatives, as dangerous. Morphine also is extremely dangerous. The anesthetist should be an expert and should call out the blood pressure, pulse and respiration readings at definite intervals.

The position on the table is a question of preference. Removal and hemostasis are sometimes better accomplished though the danger of shock is greater as well as the means of combating it more difficult with the patient in the sitting position.

Various surgical approaches are illustrated in Fig. one. Subtemporal decompression is done through the straight vertical incision. Osteoplastic flaps are usually turned down with the temporal bone as a base and the bone left attached to the scalp and temporal muscle to insure blood supply. Drill holes are made and connected with Gigli saw cuts. The large lateral flap is used to approach the cerebral hemispheres and, by making it forward or backward, the frontal and occipital lobes can



Classical incisions for intracranial operations. A—approach to the hypophysis; B—approach to the cerebellum; C—incision for subtemporal decompression; D—approach to the cerebral hemispheres.

Fig. I.



be reached. After the turning of the flap, it may be necessary to reduce intracranial pressure by puncturing the ventricle or by intravenous hypertonic solution, for if the dura is opened in the presence of tremendous pressure, the cortex may rupture causing destruction of brain tissue and possibly hemorrhage. If the pathology is not in evidence upon the opening of the dura, needle punctures are made searching for areas of increased or lessened pressure or for possible cysts, and the advisability of splitting the cortex to find a possible underlying tumor presents itself. It should certainly not be done in a motor or sensory area unless disturbance of function or sensation is already present. In a silent area it may be considered.

The tumor located and a piece excised, a frozen section is made and a pathological diagnosis obtained. If possible, the tumor is entirely removed; if not, partial removal is advised, and considerable bone should be resected from the base of the flap to give adequate decompression. The removal of all fibroblastic tumors—endotheliomas, meningiomas, and neurofibromas—should always be attempted. The blood supply and position may make it advisable to delay removal until a subsequent operation. If there is any doubt as to the patient's condition, the surgeon must never hesitate to terminate the operation, as the shock of the removal, with its frequent loss of blood, can be better avoided in a two stage operation. Also in the second stage many deep tumors are found nearer the surface. Astrocytomas and others of the glioma group should be treated radically, always of course considering the condition of the patient. With the spongioblastomas this is true with reservations. In the cases of spongioblastoma, especially those occurring in the brainstem, could a definite preoperative diagnosis be made, our inadequacy could be admitted and surgery avoided. However, as their incidence is only about one out of five of the known gliomas and as there are many other conditions, tuberculomas, gumma, thromboses, that may simulate brain tumors and thus reduce their case incidence, it is probably unsound to delay surgery because a spongioblastoma is believed present. This is especially true in cases of fibroblastic tumors to which the brain, having compensated for years of growth, suddenly reacts and gives a rapid history of symptoms closely resembling

the rapid growth of one of the malignant glioma types. The fibroblastic tumors and most of the gliomas are resistant to radiation and they group themselves under tumors which, if to be benefited at all, will be benefited by surgery. Although this is true, it is usual to give all cases in which complete removal has not been accomplished one or more courses of radiation. Medulloblastomas, on the other hand, are sensitive to radiation and excellent results are obtained with decompression and radiation or partial removal and radiation. The wisdom of decompression here manifests itself as radiation often causes considerable reaction. In cases in which infiltrating gliomas are found and are definitely limited to the areas in front of the precentral gyrus an attempt may be made to remove that part of the frontal lobe including the tumor. The loss of considerable frontal lobe is often well tolerated, although some patients develop mental symptoms. This is also true in the occipital lobes and though he has defects of sensory reception, the patient is able to live usefully in spite of them. On the other hand, loss of tissue in the parietal lobe causes varying forms of paralysis and disturbance of sensation which are definitely incapacitating.

Tumors of the third ventricle can be reached through the frontal lobe and the anterior horn of the lateral ventricle or from above, between the hemispheres and through the corpus callosum.

Through the classical opening for exploring the pituitary body, meningiomas of the olfactory groove and the sphenoid can be reached. It should be noted here that drill holes must be made a sufficient distance from the midline to avoid the longitudinal sinus. There are many variations of this approach in order to prevent scars on the forehead. Pituitary tumors are radiosensitive and can be radiated without preliminary decompression. However, the sella is often explored through this approach to remove tumors which are impairing sight—the supracellar cysts, and the pituitary adenomas.

In approaching the posterior fossa, the muscles of the neck are divided and the floor under the cerebellum removed. The dura here is intimately related to the lateral sinuses and cerebellar sinuses and there are often venous anomalies which make operating difficult. Great care must be exercised to avoid hemorrhage

which may delay the operation beyond the tolerance of the patient. Operations on the cerebellum and in the fossa are usually preceded by relief of pressure through a puncture of the posterior horn of the lateral ventricle. Through the cerebellar approach the acoustic neuromas are reached as are also medulloblastomas and astrocytomas frequently found in children.

Closure of brain operations must be thorough. When no recurrence is expected, the dura may be closed. Interrupted silk sutures are used close together in the galea, subcutaneous tissues, and skin. It is often wise, especially in the pituitary approach to suture the periosteum as an additional layer. The possibility of a fungus cerebri in a badly closed wound, as well as of a meningitis gaining access through a spinal fluid leak, makes this absolutely essential to a successful operation.

Blood pressure, and respiration must be maintained during operation and the patient must not be returned to bed until these are satisfactory. The head of the bed should be elevated and the patient closely watched for signs of increased pressure, high fever, and hemorrhage. High fever due to midbrain disturbance must be combated by ice packs and colonic flushings. It may be necessary to restrict fluids to prevent post-operative edema, and if it occurs, the intravenous injection of hypertonic solutions may be necessary. Tube and intravenous feedings are often necessary. As in other forms of surgery, the desperately ill patient may be saved by constant care and watching by a special nurse whereas he would die if left on general care.

In conclusion it may again be stated that the treatment of brain tumors is not hopeless and the general pessimistic attitude regarding them should be discouraged.

## CONTROL OF FOOD ALLERGENS EXTREMELY DIFFICULT

ORVILLE HARRY BROWN, M. D.  
Phoenix, Arizona

It has been my contention that foods, as causes of allergic reactions are far more difficult to control than are other allergens such as pollens, bacteria, animal emanations, dusts, etc., and that foods are probably more common offenders than are other allergens.

Allergens which may in a measure compare with foods, in difficulty of management and frequency of offense are bacteria. From birth to death we have bacteria; we may become sensitized to their proteins. Treatment, however, will usually control one's sensitiveness to them.

Another allergen which is extremely difficult to avoid is orris root; nearly every woman one meets has her face and body covered with powder; even men use it; it's in face powder, bath powder, tooth pastes, and many other cosmetics; one may keep his distance but orris root reaches him. One, however, may be given tolerance to orris root.

House dusts, likewise, are ubiquitous. One may change house dusts by changing houses. House dusts may be given in small doses gradually increased until tolerance is established.

Pollens may be given by hypodermic needle, or even by mouth as proven by Dr. Gatterdam, to raise tolerance to them and relieve hayfever and asthma; or one may move away from these irritating substances.

In the case of animal hairs or feathers the animals, birds, furs, pillows, mattresses, etc., may be done away with or one may move to a section where these agents are not sufficiently common to cause trouble or they may be dealt with in other ways; then, too, tolerance to the allergens may be developed by the small dose inoculations gradually increased.

The skin reactions to pollen, dusts, orris root, animal emanations, etc., are usually clear cut.

Foods one has constantly within him. A food which produces definite distress immediately after one has eaten it is easy to detect and one knows which food to blame for the trouble; but foods frequently produce delayed effects; then, too, one eats so many foods at a time as a rule that he may not know which one to blame when reactions result. Skin tests to foods often are not positive or at least not strikingly positive even though they cause trouble. Again one may go on a limited diet, for example buttermilk, and he may become free from his trouble (asthma, eczema, or other allergic reactions), and staying on the buttermilk, he may become sensitive to its proteins and develop an allergic state from them. Taking too much of any one article may lead to sensitization to it.



As I have indicated in a recently published paper, a food ordinarily may be perfectly harmless, but because it has lain on the grocer's shelf or in the sun in the producer's truck it may undergo sufficient chemical change to be particularly active in causing allergy. This explains why a food taken at one time may be harmless whereas at other times it produces violent reactions.

The cooking of food may destroy or lessen the effects of allergens. For this reason a person may eat a food which is thoroughly cooked without trouble but cannot take it another time without harm when raw or even moderately cooked. One may instruct his cook in adequately cooking his food and the cook, thinking the idea is all foolishness, may slight the job and trouble may come with the reason not apparent.

Then, too, a combination of certain foods may cause trouble while any one of the foods taken alone is harmless. The explanation is that no one food produces sufficient reaction by itself to produce trouble whereas two or more of them in combination are enough to give the disturbance. Certain foods are special problems because they are used in a variety of ways and dishes. Onions for example are used in sauces, catsups, dressings, salads, etc. Wheat, too, is extremely difficult to avoid as it is found in bread, corn bread, rye bread, cakes, crackers, gravies, etc.; the same is true of milk, eggs and many other substances. When one is sensitized to any one or more of the common articles of diet the problem of avoiding it is indeed difficult.

Overtaxing one's digestive apparatus is often a cause of trouble. One may simply take too much food or he may take too much of a certain article of food. The amount one eats depends upon habit. I do not need to dwell upon the difficulty of teaching a person to control his appetite. Taking too much food and especially too much of one article of food predisposes toward development of sensitizations.

If the proteins before the amino acid stage of digestion get into the blood stream in sufficient quantities because of an overtaxed digestive apparatus and the chemicals of the tissue are not sufficient to deal with the undigested food, the whole, or split, proteins are certain to give one or another type of allergic reaction. It seems to me that this may account

for the allergic individuals who give no hereditary basis for their allergies.

I have proven that good digestion is essential for recovery from allergic diseases. It is equally important in preventing allergy. Digestion may be inhibited by a variety of factors. It is temperamental. Cannon showed this decades ago.

Foci of infection, especially those about the nose and mouth, may readily set up gastritis and depress the stomach's secretion so that there may be little or no gastric digestion. Fatigue, excitement, nervousness,—arguments, quarrels, domestic discord—and many other factors depress digestion and check peristalsis, but do not check bacterial growth. Fermentative processes are thereby favored. One who is having asthma, eczema or pruritis from his food knows how a little nervousness during his meal will make him more allergic than usual.

If one develops a severe allergic reaction it takes days usually before he gets back to where he was before; in this interim, he is readily affected by foods and other allergens which would ordinarily not produce harm; since he is on edge as it were, the slightest allergen may tip him over into a severe reaction.

Since good digestion is extremely imperative in preventing allergic reactions, it is important that patients eat slowly and chew their food well. Eating slowly or rapidly is a matter of habit, and habits are notoriously difficult to change. The physician may instruct the patient to eat slowly, but if he has had the habit of eating rapidly it is a foregone conclusion that the physician's advice will have no influence—at least for a long time. It is necessary that a patient train himself to eat slowly if he hopes to recover and stay recovered from his allergic reactions that are due to food. If he is not sensitive to foods, obeying these rules will tend to keep him from becoming sensitive to them.

Thorough chewing of food is a matter of habit but it also may depend greatly upon the presence of teeth and the shape of the mouth. One may have his own teeth and the occlusion may be so poor that he is scarcely able to use them for mastication. The question of finances may enter in, to such an extent, that one cannot afford to have the necessary work done to obtain proper occlusion, or to have the correct bridges or plates made to give adequate mas-

ticating surface. Poorly fitting dentures are always a handicap and predispose to accentuation of allergic states.

It has been stated repeatedly by allergists that the substances contacted in the greatest amount and frequency are most likely to be the most serious allergens. Since one has food in him from shortly after birth to death, it would seem that food is certainly a most common allergen. On this course of reasoning the food one likes the most, other things being equal, are likely to be the source of his allergens. It is important, then, not to eat too much of any one food at any one meal nor too frequently and regularly, but to eat a variety—a little of this and a little of that.

The question of raising tolerance against foods by the administration of peptones, specific peptones or propetones is not proven and is probably next to impossible. Complete strict elimination of an offending food from one's diet for a sufficient length of time will desensitize to it or at least allow it to be again eaten, in small amounts and infrequently, without harm.

My belief is that it is scarcely possible to over emphasize the importance of careful selection, preparation, and mastication of food; eating is serious business and deserves far more thought than it ordinarily receives.

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### THE NEW PROGRAM OF THE SOUTHWESTERN MEDICAL ASSOCIATION

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The first program under the new plan for the Southwestern Medical Association is now a matter of history. Although the attendance was not as large as was expected, those who were present pronounced the meeting well worth while.

All papers and clinics were given by men not members of the Association—as three days of post-graduate study. We heard many fine comments upon the speakers. There were some, however, who believed that the combination of the present plan with the former would be more desirable.

Our own opinion is that if certain subjects were assigned to members of our own association, with the request that they prepare up-to-date papers on the subjects, that our association would obtain just as much good as was obtained from some of the papers of the out-

side speakers. Very often the greatest good of a paper comes to the man who prepares it. On this course of reasoning it seems a shame to deprive our own members of the privilege of preparing some of the papers. It probably is wise to have a good sprinkling of foreign talent on the programs. At any rate this was a splendid meeting and the men who stayed away from it were the losers.

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### DOCTOR—SAVE A \$20.00 BILL FOR A TRIP TO GUAYMAS

Arrangements are being made by the Santa Cruz County Medical Society for a trip to Guaymas (Old Mexico) following the meeting of the Arizona State Medical Association to be held in Nogales next April. Physicians and their ladies will be given an opportunity to participate in a most pleasant, enjoyable, inexpensive, and a never-to-be-forgotten trip to Guaymas, On the Gulf. The departure from Nogales will be made on Saturday afternoon, following adjournment, arriving at Guaymas early Sunday morning in ample time to enjoy a fine day's fishing. The return trip will be made leaving Guaymas Monday night, arriving Nogales early Tuesday morning. Those who wish to remain longer in Guaymas may do so.

The trip into real Old Mexico begins at Nogales, Sonora, and as your train rides south it takes you through villages, small towns, and cities where you get a real chance to view the colorful Mexican life.

Picturesque and graceful will seem to you the groups of peons, wrapped to the eyes in colorful blankets or zarapes, wide sombreros on their heads, shod with sandals, or huaraches as they call them, that gather at little villages to see the trains pass through. You will most assuredly be attracted by the lively commotion at the railroad stations. There you will see a busy crowd of native vendors selling fruits, sweet cakes, tortillas, coffee and flowers to passengers on the train. Ladened trays and bright pottery bowls are held up to the coach windows. Women, with heads swathed in shawls or tapalos, fan braziers from which coffee sends out an aromatic appeal. It is a scene of color and animation, novel and fascinating. You may regard it as a sign of hospitality, characteristic of the people of Mexico.

Whatever the scene chances to be, certainly



it will be interesting and in strange contrast to the country you have left, for you may cross oceans and see less fascinating 'foreign' lands than lay just a step over the United States border.

Mexico is a country of vivid contrasts—of weird deserts and fertile fields, of deep canyons and peaks that tower more than 17,000 feet, of tropics and eternal snows. The picturesque straw huts of its quaint villages contrast with the noble, graven stone buildings of the great cities. It is an old country with a strange and highly developed civilization that extends centuries back through Spanish colonial days into the vague ages of the Aztecs and Toltecs; yet it is in many respects a new land, as may be seen everywhere in the towns and development on the West Coast. And in that West Coast development, too, you may see odd contrasts—tractors and oxen plowing in adjacent fields, automobiles and burros both being used for transportation—the most primitive and most modern scientific methods intermingled. The trip is well worth while for just what you can see from the car windows, but the things of more compelling interest are in the cities and villages along the way. At Guaymas you will have an opportunity to spend some time in the church, wander through the big market with its scores of colorful bazaars; get an old carriage and jog through cobble-stone streets; idle an hour or two away over a cool drink in shaded out-door refreshment gardens.

Leaving Nogales our first principal stop will be made at Magdalena, where you view for the first time a typical Mexican plaza, and the ancient San Francisco Xavier Mission, built in 1690. Your next noteworthy stop is Hermosillo (Little Beauty), capital of the state of Sonora, a lovely city of 25,000 population, famous for its rose gardens, orange groves, beautiful cathedral and intriguing Spanish-Moorish architecture. The name "Little Beauty" not only applies to the place, but includes the women as well. The unusual number of beautiful women here is one of the outstanding characteristics of the city.

The city of Guaymas is located on Guaymas Bay and has a perfect, natural land-locked harbor. It is one of the principal seaports of Western Mexico, with a population of about 6,000. The real beauty of Guaymas Bay cannot be

seen from the city proper; but a short boat ride will convince you that it is a very picturesque and scenic place. Motor launches which will accommodate several persons can be rented for three or four pesos per hour. The boatmen are expert fishermen as a rule, and usually carry troll lines for the use of their customers. A trip to the outer entrance of the harbor requires about two hours to go and come. Fish abound in the Gulf, and sportsmen who have fished in all parts of the world have been known to say that probably no body of water anywhere excels the Gulf of Lower California for the size, variety, gameness and quantity of its sea life. And talk about oysters, shrimp, crabs, lobsters—well, there is no end to what you will enjoy in the way of sea food.

A short distance from Guaymas, about two miles west is Miramar, a resort beach, one of the most interesting spots in Mexico, where nature never was more prodigal, and at this spot the Southern Pacific Railroad Company has erected a palatial tourist hotel "Playa de Cortez," with most elegant and comfortable accommodations for the tourist's perfect enjoyment of the wonders of this spot, with its climate of Paradise, dreamful skies and one of the most picturesque bathing beaches in the world.

You will not be troubled about pass-ports. This will all be taken care of by the committee-in-charge. The Mexican officials will extend every possible courtesy to those making the trip. The railroad company is making a special reduction in rates and a \$20.00 bill should be sufficient to cover the full cost of the trip for each person. So, come along and enjoy the finest, shortest trip ever in your experience; bring the wife and kiddies—they, too, will have a big time. The city officials of Guaymas are co-operating to make your trip enjoyable from every angle—and the same thing may be said of the officials of the state of Sonora. A little later we'll give you more specific details, but keep this trip in mind, and plan now on going, as well as being with us in Nogales at the 1936 annual meeting of the Arizona State Medical Association.

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Dr. Anson B. Ingles, former Director of Gila County Health Unit is now practicing in Globe, Arizona. Dr. Ingles has traveled extensively in India and while there he made a study of Hindu magicians and fakirs. It is said that he frequently startles his patients by pulling rabbits out of a hat or doing some other mystifying performance.

# Southwestern Medicine

Printed by THE A. C. TAYLOR PRINTING CO., Phoenix, Arizona  
Published monthly for the Board of Managers of the four constituent societies.

VOL. XIX.

DECEMBER, 1935

No. 12

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## OUR NATIONAL ORGANIZATION

We have just returned from a meeting at Headquarters. Every year the American Medical Association calls a meeting of the secretaries of the State Medical Associations and the editors of the State Medical Journals. This year the meeting was at the Palmer House in Chicago because of certain changes being made at 535 North Dearborn Street.

Rock Sleyster, Chairman of the Board of Trustees of the American Medical Association, presided at all sessions. There were addresses by James S. McLester, President of the American Medical Association, W. D. Cutter, Secretary of the Council on Medical Education and Hospitals of the American Medical Association, Paul Nicholas Leech, Secretary of the Council on Pharmacy and Chemistry, D. F. Harbridge, Secretary of the Arizona Medical Association, J. G. Crownhart, Secretary of the State Medical Association, W. F. Braasch of the Minnesota State Medical Association, Morris Fishbein, Editor of the American Medical Association, and Ralph F. Pino of the Michigan State Medical Association.

Along with the bouquets given to our National organization there were thorns and brick bats. The speakers spoke or seemed to speak with a great deal of feeling. There was a general conception among the members present that our National organization is truly a great organization. We should regard it not as "The" American Medical Association but as "Our" American Medical Association.

The Texas Association is the Texas branch of the American Medical Association and likewise the New Mexico and Arizona Associations are branches of the American Medical Association.

We may not approve entirely of each and every policy of our National Association. In meetings it is perfectly proper that we should speak our minds—tell one another what we think; but out of meetings we should be squarely back of our officers and policies of our National organization. We may not like the Editor or the way he combs his hair or the way he speaks, or we may not like the Secretary or we may not like the Secretary of the Council on Pharmacy and Chemistry; we may think he is too small a man for the job or something else is wrong; but so long as these men are our paid officers and servants it is our duty and privilege to be guided by them and to give them our heartiest support.

There was no request or intimation that such an editorial as this would be expected or even appreciated by the officers of the American Medical Association. But, Physicians of the Southwest, the American Medical Association is our National organization—ours to do with as we think best. It is well for us to remember, however, that we should build it up and make it stronger; in no part should it be torn down unless there is a well conceived program of building the structure stronger.

## THE DISTRICT OF COLUMBIA MEDICAL SOCIETY HAS DEFINITE PLANS ON MEDICAL ECONOMICS.

We published in the November issue an excellent resume of the plans of this progressive medical association. If the reader has not read that article, we suggest that he turn at once to the November issue of Southwestern Medicine and read it. We repeat that we believe that every county medical society should be studying this problem in all seriousness.



## NATIONAL RADIO HEALTH TALKS

The American Medical Association is dramatizing programs over the network of the National Broadcasting Company every Tuesday at 5:00 P.M. E.S.T., 4:00 P.M. C.S.T., 3:00 P.M. M.S.T., and 2:00 P.M. P.S.T. On the 3rd of December Morris Fishbein, Editor of The American Medical Journal, will talk on Tuberculosis, and on the 10th on Hunting Accidents. Dr. W. W. Bauer, Director of Bureau of Health and Public Instruction of the American Medical Association, will talk on Animal Disease in Man on the 17th, on the 24th, Eat, Drink, and Be Merry, and on the 31st, Pneumonia. We suggest that the physicians of the Southwest see that proper publicity is given to these programs.

## A NEW POLICY OF THE AMERICAN MEDICAL ASSOCIATION.

The Council on Medical Education has decided to no longer carry an approved list of sectarian schools, and will no longer publish a list of two-year medical schools, and they also state that a medical school must not allow its number of students to exceed the number that can be adequately taught with its laboratory, library and clinical facilities.

## THE DALLAS SOUTHERN CLINICAL SOCIETY

Plans are already under way for the spring conference. There will be a general assembly with distinguished speakers from various parts of the country, clinics, round-table discussions, and elaborate dinner, and motion pictures all for the registration fee of ten dollars. The dates are March 16-19. Physicians of the Southwest should remember this date and endeavor to attend the meeting.

## UNITED STATES CIVIL SERVICE EXAMINATIONS FOR PUBLIC HEALTH CONSULTANTS.

The United States Civil Service Commission is calling for applications for examinations as Public Health Consultants and for Social Economists. Evidently this is because of the Social Security legislation by the last Congress. We hope to be able to present a digest of the Social legislation to our readers in the near future.

## THE 1936 ARIZONA MEETING

At the 1936 meeting of the Arizona State Medical Association to be held in Nogales April 23-24-25, for the first time in the history of the Association there will be a meeting of the Eye, Ear, Nose and Throat physicians of the state. Several prominent guest speakers will participate.

At the same time there will be a group meeting of the Mexican physicians, who are now busy preparing their program. Dr. Najera, Ambassador from Mexico to the United States, a most prominent physician of Mexico City, is expected to be present and address the group. The Santa Cruz County Medical Society is already assured of splendid scientific exhibits for the 1936 meeting of the state association, among them being:

1. Drs. Soiland, Costolow and Meland, Los Angeles.
2. Dr. John O. McReynolds, Dallas.
3. Dr. Loring T. Swain, Boston.
4. The American Medical Association, Chicago.
5. Dr. William B. Watts, Jr., Miami.
6. Arizona State Board of Health, Phoenix.
7. Green's Eye Hospital, San Francisco.
8. Dr. Hans Barkan, San Francisco.
9. Pathological Laboratory, Phoenix.
10. Dr. R. O. Schofield, Boulder City, Nev.
11. The Wyatt Clinic, Tucson.
12. Dr. Glenway W. Nethercut, Chicago.
13. The Desert Sanatorium, Tucson.
14. U. S. Public Health Service, Washington.

There will also be several commercial exhibits. Full details concerning the scientific and commercial exhibits will be given later. However, at this time it is hoped the profession of Arizona will appreciate the efforts of the host-society in securing these exhibits.

**NOTICE—PLEASE:** If any one has any suggestions to offer which will in any way aid the Santa Cruz County Medical Society in making the 1936 meeting the BIGGEST and BEST ever held in the history of the Association, then please communicate with the boys in Santa Cruz. This is YOUR convention and any suggestions you have to offer will be gratefully received.

SANTA CRUZ MEDICAL SOCIETY.

## OBITUARY

Dr. Fenn J. Hart died November 9, 1935, at his residence at 1118 North Second Street, Phoenix, Arizona. Dr. Hart had been ill for about six months. His condition became serious in recent weeks.

He arrived in Arizona March 7, 1884, and became physician of the San Xavier Mission, in which position he remained for three years. He then moved to Tempe, Arizona, where he engaged in private practice. In addition to being active in his professional work he found time for civic work. He served as the first mayor of Tempe and held the position for a number of years. He was a member of the board of the old Territorial Normal School located at Tempe. He served in the Spanish-American war in the Philippines for ten months as a Red Cross physician with the San Francisco unit.

He returned to the United States after the war and practiced for several years as a mining company physician in various places—in Jerome, Bisbee, Ray, Christmas and Mexico. In 1919 he moved to Phoenix and for a number of years had his office at Second and Washington Streets.

Dr. Hart enjoyed an extensive practice in Phoenix and was kept so busy that he was rarely seen at the medical meetings.

In 1888 he married Rosa Ann Brown in Phoe-

nix; he had one daughter who is now Mrs. R. N. Wilson of Berkeley, California, whom he visited this past summer. Surviving Dr. Hart are his wife, daughter and a niece, Mrs. H. B. Griffin of Mesa.

#### NEWS NOTES

Charles N. Sarlin, M. D., recently located at Tucson, Arizona, 127 South Stone Avenue. His practice is limited to psychiatry.

Dr. Marcus H. Watters recently arrived at Fort Whipple to assume a position on the medical staff. He comes from the Veterans Administration of Helena, Montana.

The Public Health officials and engineers from the counties and cities of Arizona had a three-day meeting in Phoenix during November. The meetings were held in the Capitol Annex. The subjects which received a great deal of discussion were, Sanitation of Swimming Pools, Garbage, Disposal, Meat Inspection and Restaurant Sanitation. Prominent among the physician speakers were Dr. George Hays, State Epidemiologist of Arizona, and Dr. R. W. Hussong, City Health Officer of Phoenix.

Drs. George Arnold Stevens and Robert S. Hardwick recently of the Mayo Clinic have located in El Paso and have offices in the Bassett Tower. Dr. Stevens will limit his practice to diagnosis and surgery and Dr. Hardwick to genito-urinary diseases.

Dr. James Sherman has left El Paso and is practicing in Kentucky.

Dr. J. Mott Rawlings is convalescing from a staphylococcal septicemia which he developed in July. He had nine transfusions. He is now up and about and expects to resume practice about December 1st.

Dr. F. P. Miller was named governor by the American College of Surgeons for the state of Texas at the recent San Francisco meeting.

Dr. E. F. Garlington of Phoenix, who has been in St. Joseph's Hospital for four months with a broken leg received in an automobile accident, returned recently to his home.

Dr. C. A. Donaldson of Tucson, Arizona, is a member of the County Health Clinic of Pima county.

Dr. L. J. Reagan of Tucson, Arizona, is an assistant in the County Health Clinic of Pima county.

According to a newspaper dispatch, Dr. Harley Yandell's mother who lived at Mount Vernon, Ill., passed away on the first of December of this year.

Dr. Benjamin Herzberg of Phoenix and Miss Dorothy Kline of Los Angeles were married at Dr. Herzberg's home by Rabbi Philip Jaffa. Dr. and Mrs. Herzberg had a wedding trip to the Grand Canyon. At present they are living at Hotel Westward Ho.

The wedding took place as a surprise to the members of the families of both the bride and groom who had been invited to a Thanksgiving dinner at the home of the bridegroom. The young couple announced their plans after the members of the families had assembled.

Dr. E. Payne Palmer of Phoenix, while in San Francisco, broke into public print by advising those who wished to enjoy longevity, happiness, and health to obey the following don'ts:

"Indulge in alcohol;

Become excessively emotional;

Submit to anger, avarice, ambition, vanity, gluttony, or uncleanness;

Attempt to avert parenthood."



**THE LONG SANATORIUM**  
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**A. D. Long, M. D.**  
Medical Director

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**CRUM EPLER, M. D.**  
Superintendent



"Vanity," the doctor explained, "usually affects health in connection with attempts to acquire a graceful figure by injurious means."

Dr. and Mrs. I. E. Huffman of Tucson spent a few days in Phoenix in the early part of December.

Dr. Orville Harry Brown of Phoenix was asked to address the Grandview Woman's Club upon the subject of "The Cure of Cancer" early in December.

Dr. D. F. Harbridge of Phoenix attended the Secretaries' and Editors' Meeting held in Chicago during November; Mrs. Harbridge accompanied him. The Doctor took advantage of his proximity to spend two or three days with his family at Racine. While there he attended the Eye, Ear, Nose and Throat Section of the Milwaukee Society, and was honored by being asked to address them. Dr. Harbridge gave a very interesting paper before the meeting of the Secretaries and Editors, which is mentioned editorially in this issue.

Dr. and Mrs. Orville Harry Brown of Phoenix spent two weeks in the Middle West during the latter part of November and the Doctor attended the Secretaries and Editors' Meeting in Chicago. He also took occasion to visit his mother at Kansas City during this time.

Drs. W. R. Lovelace, L. M. Miles, W. H. Thearle, C. C. Keeler, J. W. Hannett and P. G. Cornish of Albuquerque, E. W. Fiske of Santa Fe and F. H. Crail of Las Vegas attended the recent American College of Surgeons meeting in San Francisco.

Dr. M. K. Wylder of Albuquerque attended the Southern Medical Society meeting in St. Louis; he also attended a class reunion at Washington University Medical College.

## BOOK REVIEW

**DISEASES OF THE THYROID GLAND**, by Arthur E. Hertzler, M.D.; With a chapter on Hospital Management of Goiter Patients by Victor E. Chesky, M.D.; third edition, entirely rewritten; C. V. Mosby Company; St. Louis, 1935; \$7.50.

Dr. Hertzler has produced his third edition of Diseases of the Thyroid Gland; it is an enlargement and an improvement over the former volumes.

Practicing in a country community he has the opportunity to follow his patients in a more or less intimate way for years.

Those who have been familiar with the former editions of this book know its value and need only to be told that this is an improvement which is a result of more learning.

The book is well illustrated with drawings by Tom Jones. The publishers have done their work in a most excellent manner. The book is especially recommended to all physicians interested in goiter work.

It is interesting to note: that a fair average of the length of time an infant receives dextri-maltose is five months; that these five months are the most critical of the baby's life; that the difference in cost to the mother between dextri-maltose and the very cheapest carbohydrate, at most is only \$6 for this entire period—a few cents a day; that, in the end, it costs the mother less to employ regular medical attendance for her baby than to attempt to do her own feeding, which in numerous cases leads to a seriously sick baby, eventually requiring the most costly medical attendance.

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the guest rooms. Music, an extensive library of scientific, historical and popular volumes, a drawing room where guests may entertain, recreation and game rooms, a roof garden, Venetian blinds, large outdoor exercise facilities, private baths and lavatories, and other features play their part in this new, modern neurological hospitalization.

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SYPHILLIS AND GONORRHEA  
 IN NEW MEXICO

Five tables are here presented which should have accompanied the excellent article on "Causes of Cases of Syphilis and Gonorrhea Under Medical Care in New Mexico, by Drs. M. J. Exner and Walter Clark, published in the July issue (1935) p. 241.

Source of Reports and Cases Under Treatment in New Mexico, December 1, 1933.

SOURCE	Total number of reports	No. reporting no cases	1 or more cases	Per cent reporting 1 or more cases	Total No. of cases reported	Percentage of cases reported by each source
Total .....	350	154	196	100.0	1831	100.0
Physicians .....	278	107	171	87.2	1594	87.1
Hospitals .....	45	32	13	6.6	85	4.6
Clinics* .....	15	10	5	2.6	66	3.6
Institutions .....	12	5	7	3.6	86	4.7

\*Includes out-patient departments of hospitals.

Table 1  
Total Cases of Syphilis and Gonorrhea Under Treatment and the Case Rates Per 1,000 Population.

Diagnosis	TOTAL			WHITE			INDIAN			NEGRO		
	Both sexes	Males	Fe- males	Both sexes	males	Fe- males	Both sexes	Males	Fe- males	Both sexes	Males	Fe- males
Total Cases under treatment												
Syphilis and gonorrhea .....	1831	1291	540	1672	1203	469	106	56	50	53	32	21
Syphilis .....	1011	706	305	928	666	262	55	23	32	28	17	11
Gonorrhea .....	820	585	235	744	537	207	51	33	18	25	15	10
Case rates per 1,000 population												
Syphilis and gonorrhea .....	4.3	5.9	2.6	4.3	5.9	2.5	3.7	3.7	3.6	18.6	20.9	15.9
Syphilis .....	2.4	3.2	1.5	2.4	3.3	1.4	1.9	1.5	2.3	9.8	11.1	8.3
Gonorrhea .....	1.9	2.7	1.1	1.9	2.6	1.1	1.8	2.2	1.3	8.8	9.8	7.6

Table 2  
Case Rate Per 1,000 Population by Stage or Disease.

Race and sex	Syphilis			Gonorrhea		
	Total	Early	Late	Total	Acute	Chronic
Total						
Both sexes .....	2.4	1.3	1.1	1.9	1.2	0.7
Males .....	3.2	1.8	1.4	2.7	1.8	.9
Females .....	1.5	.7	.8	1.1	.7	.4
White						
Both sexes .....	2.4	1.3	1.1	1.9	1.2	0.7
Males .....	3.3	1.9	1.4	2.6	1.7	.9
Females .....	1.4	.7	.7	1.1	.6	.5
Indian						
Both sexes .....	1.9	.6	1.3	1.8	1.6	.2
Males .....	1.5	.6	.9	2.2	1.9	.3
Females .....	2.3	.5	1.8	1.3	1.3	...
Negro						
Both sexes .....	9.8	5.5	5.3	8.8	4.9	3.9
Males .....	11.1	4.6	6.5	9.8	6.3	3.3
Females .....	8.3	4.5	3.8	7.6	3.0	4.6

Table 3.  
Annual Incidence Rates Per 1,000 Population, by Stage of Disease, Race and Sex, as Indicated by the Number of New Cases Accepted for Treatment for the First Time During November, 1933.

Race and sex	Syphilis			Gonorrhea		
	Total	Early	Late	Total	Acute	Chronic
Total						
Both sexes .....	7.9	5.2	2.7	9.8	7.3	2.5
Males .....	10.2	6.8	3.4	14.0	11.0	3.0
Females .....	5.4	3.5	1.9	5.3	3.3	2.0
White						
Both sexes .....	7.9	5.2	2.7	9.2	6.8	2.4
Males .....	10.5	6.9	3.6	13.0	10.3	2.7
Females .....	5.1	3.4	1.7	5.1	3.1	2.0
Indian						
Both sexes .....	2.9	2.5	.4	14.1	12.4	1.7
Males .....	3.2	3.2		22.6	20.2	2.4
Females .....	2.6	1.7	.9	5.1	4.2	.9
Negro						
Both sexes .....	63.2	33.7	29.5	46.3	16.8	29.5
Males .....	47.0	31.3	15.7	54.9	15.7	39.2
Females .....	81.9	36.4	45.5	36.4	18.2	18.2

Table 4.  
Percentage of Cases Under Treatment or Observation in Private Practice and in Public Clinics.

Diagnosis	Males				Females				Diagnosis	Males				Females			
	Tot	W	Ind	Neg	Tot	W	Ind	Neg		Tot	W	Ind	Neg	Tot	W	Ind	Neg
Private Practice									Public Clinics								
Total									Total								
Syphilis ..	83.3	85.1	39.1	70.6	80.7	85.9	37.5	81.8	Syphilis ..	16.7	14.9	60.9	29.4	19.3	14.1	62.5	18.2
Early ..	96.0	97.4	33.3	100.0	93.0	93.1	85.7	100.0	Early ..	4.0	2.6	66.7		7.0	6.9	14.3	
Late ....	66.2	68.0	42.9	50.0	69.8	78.8	24.0	60.0	Late ....	33.8	32.0	57.1	50.0	30.2	21.2	76.0	40.0
Total									Total								
Gonorrhea	92.6	96.3	30.3	100.0	92.8	93.7	83.3	90.0	Gonorrhea	7.4	3.7	69.7		7.2	6.3	16.7	10.0
Acute ..	91.9	96.4	32.1	100.0	92.9	94.1	83.3	100.0	Acute ..	8.1	3.6	67.9		7.1	5.9	16.7	
Chronic	94.1	96.1	20.0	100.0	92.6	93.2		83.3	Chronic	5.9	3.9	80.0		7.4	6.8		16.7



One of a series of advertisements prepared and published by PARKE, DAVIS & CO. in behalf of the medical profession. This "See Your Doctor" campaign is running in the Saturday Evening Post and other leading magazines.



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Perhaps these past several disturbing years have drawn your nerves taut, or lowered your general resistance.

Perhaps the years have contributed too generously to your weight, thus putting an unfair burden upon your heart. Or perhaps he'll find some functional disorder which is capable of reaching serious proportions if neglected. Let your doctor decide what ought to be done.

And if he should find only some minor ailment, which will yield

quickly to treatment, you'll have the thrill of getting a good bill of health from the one person who can give it. What a start for a bright new year—to be able to walk from your doctor's office, head high, unafraid, to face 1936 with the invigorating knowledge that you have the physical equipment with which to fight for the things in life you want most!

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